

University of Wollongong - Research Online

Thesis Collection

Title: Fiduciary finance and the pricing of financial claims: a conceptual approach to investment

Author: Martin Gold

Year: 2007

Repository DOI:

Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following: This work is copyright. Apart from any use permitted under the Copyright Act 1968, no part of this work may be reproduced by any process, nor may any other exclusive right be exercised, without the permission of the author. Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material.

Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

Unless otherwise indicated, the views expressed in this thesis are those of the author and do not necessarily represent the views of the University of Wollongong.

Research Online is the open access repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

University of Wollongong Thesis Collections

University of Wollongong Thesis Collection

University of Wollongong

Year 2007

Fiduciary finance and the pricing of
financial claims: a conceptual approach
to investment

Martin Lionel Gold
University of Wollongong

Gold, Martin Lionel, Fiduciary finance and the pricing of financial claims: a conceptual approach to investment, PhD thesis, School of Mathematics and Applied Statistics, University of Wollongong, 2007. <http://ro.uow.edu.au/theses/688>

This paper is posted at Research Online.
<http://ro.uow.edu.au/theses/688>

NOTE

This online version of the thesis may have different page formatting and pagination from the paper copy held in the University of Wollongong Library.

UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

FIDUCIARY FINANCE AND THE PRICING OF FINANCIAL CLAIMS:
A CONCEPTUAL APPROACH TO INVESTMENT

A thesis submitted in fulfilment of the
requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from the

UNIVERSITY OF WOLLONGONG

by

MARTIN LIONEL GOLD

Bachelor of Business (Accounting & Finance)
Graduate Diploma (Applied Finance & Investment)

SCHOOL OF MATHEMATICS & APPLIED STATISTICS

2007

CERTIFICATION

I, Martin Lionel Gold, declare that this thesis submitted in fulfilment of the requirements for the award of Doctor of Philosophy in the School of Mathematics & Applied Statistics, Faculty of Informatics, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Martin Lionel Gold

7 June 2007

The highest degree of rational belief, which is termed certain rational belief, corresponds to knowledge. It is preferable to regard knowledge as fundamental and to define a rational belief by reference to it (John Maynard Keynes, 1952: 10).

Both wise men and foolish, will trade in the market, but no one group by itself will set the price. Nor will it matter what the majority, however overwhelmingly, may think; for the last owner, and he alone, will set the price. Thus marginal opinion will determine market price (John Burr Williams, 1938: 12).

CONTENTS

CERTIFICATION	i
CONTENTS.....	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF APPENDICES.....	vii
ABBREVIATIONS/ACRONYMS.....	viii
ACKNOWLEDGEMENTS	ix
ABSTRACT.....	x
CHAPTER 1 – INTRODUCTION	1
1.1 Research objectives	1
1.2 Motivation of the thesis	2
1.3 Structure and contents of the thesis	4
1.4 Publications arising from this thesis	8
1.5 Summary	9
CHAPTER 2 – AN OVERVIEW OF AUSTRALIA’S FIDUCIARY FINANCE INDUSTRY	10
2.1 Introduction	10
2.2 Differentiating fiduciary finance from traditional financial institutions	12
2.3 The origins and evolution of the fiduciary model of investing	16
2.4 The economic rationale of fiduciary finance	19
2.5 Industry sales and distribution	22
2.6 Types of financial fiduciaries	27
2.7 The economic profile of fiduciary finance	34
2.8 Types of pension funds	39
2.9 Types of investment strategies	44
2.10 Destination of industry assets	50
CHAPTER 3 – WHAT IS <i>INVESTMENT</i> ?	51
3.1 Introduction	51
3.2 Assumptions, notions and pre-conceptions	52
3.3 Formulating an applied definition of investment	76
3.4 Summary	81
CHAPTER 4 – INVESTMENT AS A SCIENCE: A SYNTHESIS OF THE EXTANT LITERATURE.....	83
4.1 Introduction	83
4.2 Preliminaries	85
4.3 A philosophical framework for evaluating the scientific status of investment	92
4.4 The paradigms of investment theory	97
4.5 Summary and philosophical direction of thesis	122

CHAPTER 5 – A CONCEPTUAL CRITIQUE OF THE CAPITAL ASSET PRICING MODEL	127
5.1 Introduction	127
5.2 Background and previous literature	130
5.3 Index constituent turnover as a source of residual errors	143
5.4 An examination of systematic risk in a scaled market model	151
5.5 Conclusions and avenues for further research	158
CHAPTER 6 – A CONCEPTUAL CRITIQUE OF THE “ACTIVE VERSUS PASSIVE” DEBATE.....	163
6.1 Introduction	163
6.2 Background and previous literature	166
6.3 A conceptual critique of the debate’s methodology	175
6.4 Implications for financial fiduciaries and corporate issuers	184
6.5 Conclusions and avenues for further research	192
CHAPTER 7 – GATEKEEPERS AND THE FLOW OF FUNDS IN THE FUDUCIARY FINANCE INDUSTRY	195
7.1 Introduction	195
7.2 Background and previous literature	198
7.3 The evolving business model of gatekeepers	205
7.4 Empirical analysis of fund manager-gatekeeper interdependencies	213
7.5 Conclusions and avenues for further research	222
CHAPTER 8 – FINANCIAL FIDUCIARIES AND CORPORATE GOVERNANCE REFORM.....	225
8.1 Introduction	225
8.2 Functional application of Australia’s corporate governance best practices	227
8.3 Background literature	232
8.4 Empirical analysis of “poor” corporate governance firms	241
8.5 Conclusions and avenues for further research	249
CHAPTER 9 – FIDUCIARY FINANCE AND THE PRICING OF FINANCIAL CLAIMS	251
9.1 Introduction	251
9.2 Requisite tenets of a conceptual approach for pricing financial claims	254
9.3 An integrated selection of important pricing factors	267
9.4 Conclusions and avenues for further research	275
CHAPTER 10 – CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS.....	278
APPENDICES	288
REFERENCES	303

LIST OF TABLES

Table 2.1: Financial products, promises and prudential regulation.....	14
Table 2.2: Selected industry mergers and acquisitions.....	26
Table 2.3: Largest fund managers.....	27
Table 2.4: Largest investment platforms.....	29
Table 2.5: Largest Australian dealer groups.....	31
Table 2.6: The asset base of Australia's financial system.....	35
Table 2.7: Growth rates in financial asset holdings.....	36
Table 2.8: Consolidated industry assets by sponsoring institution	37
Table 2.9: Sources of funding for Australian investment managers	37
Table 2.10: Types of pension funds by asset size and membership.....	40
Table 2.11: Retail pension funds.....	41
Table 2.12: The destinations of fiduciary finance assets.....	50
Table 3.1: Free-float adjustment in the S&P/ASX200 Index.....	75
Table 4.1: Paradigms of investment theory.....	122
Table 5.1: Index events and error types	146
Table 5.2: Performance effects of constituent turnover in the ASX50 Index.....	149
Table 5.3: Comparative betas for the constituents of the CMI-VW model	155
Table 5.4: Market concentration characteristics of the CMI-VW model	156
Table 5.5: Market risk contributions of the CMI-VW model constituents.....	158
Table 6.1: Constituent turnover in leading market indexes.....	188
Table 7.1: Changing modes of gatekeeper advice and influence	208
Table 7.2: Descriptive statistics for Australian pension fund mandates	214
Table 7.3: Investment mandate churn for Australian pension funds	216
Table 7.4: Gatekeeper influence over mandate churn (all asset classes).....	217
Table 7.5: Fund manager-lead gatekeeper dependencies (all asset classes).....	218
Table 7.6: Gatekeeper influence over mandate churn (Australian equities).....	220
Table 7.7: Fund manager-lead gatekeeper dependencies (Australian equities).....	221
Table 8.1: Key governance structures for issuers.....	230
Table 8.2: Key governance structures for financial fiduciaries.....	230
Table 8.3: Issuer conformance with the ASX CGC guidelines.....	243
Table 8.4: Insider block holder ownership data for Australian firms	244
Table 8.5: Performance analysis of the Poor Governance Index.....	246
Table 8.6: Key ratios of operating and financial efficiency.....	249
Table 9.1: Disaggregation of market participants and investment prerogatives.....	263

LIST OF FIGURES

Figure 2.1 Fiduciary product flows and financial market transactions.....	11
Figure 2.2: Functional separation of the financial fiduciary and its products.....	15
Figure 2.3: Innovation and evolution of fiduciary products.....	16
Figure 2.4: The divergent objectives of financial fiduciaries and investors.....	20
Figure 2.5: The fiduciary finance business model	21
Figure 2.6: A simplified fiduciary finance “value chain”.....	22
Figure 2.7: The risk-return continuum of fiduciary products.....	46
Figure 3.1: Sample statement of investment policy.....	59
Figure 5.1: The performance effects of index turnover in the ASX50 Index	150
Figure 5.2: Pro forma and published index performance	150
Figure 5.3: Capitalisation structure of the CMI-VW model.....	156
Figure 5.4: A comparison of actual market risk contributions and security betas	157
Figure 6.1: A schematic overview of fund manager performance evaluation	178
Figure 7.1: Metrics for analysing fund manager-gatekeeper interdependencies	197
Figure 7.2: The traditional gatekeeping role of investment consultants.	206
Figure 7.3: Modes of gatekeeper influence and pension funding flows	210
Figure 8.1: Poor governance screening factors	242
Figure 8.2: The cumulative gains from a “poor” governance portfolio.....	245
Figure 8.3: Selected comparative operating performance ratios.....	248
Figure 9.1: A schematic of security pricing in supposed equilibrium	253
Figure 9.2: Relative frequency curves of marginal opinion.....	261
Figure 9.3: An opinion ogive of supposed equilibrium	262
Figure 9.4: Factor models for an integrated approach to security pricing	267

LIST OF APPENDICES

Appendix 1: Milestones in Australia’s fiduciary finance industry.....	288
Appendix 2: ASX50 Index constituent changes (1994 to 2002).....	289
Appendix 3: Constituents of the Closed Market Index	290
Appendix 4: Mathematical analysis of the CAPM.....	291
Appendix 5: Mathematical analysis of fund manager evaluation methods.....	295
Appendix 6: Matrix of fund manager-gatekeeper dependencies (all asset classes).....	298
Appendix 7: Matrix of fund manager-gatekeeper dependencies (Australian equities)..	300
Appendix 8: Poor Governance Index constituents and descriptive statistics.....	302

ABBREVIATIONS/ACRONYMS

ABS	Australian Bureau of Statistics
ALM	Asset-liability management
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
ASX CGC	Australian Stock Exchange Corporate Governance Council
APRA	Australian Prudential Regulation Authority
CAPM	Capital Asset Pricing Model
CMI	Constant Market Index
EMH	Efficient markets hypothesis
ETF	Exchange-traded fund
Finsia	Financial Services Institute of Australasia
FSR	Financial Services Reform Act (2001) C'wealth
FUA	Funds under advice/administration
FUM	Funds under management
GIC	Guaranteed investment contract
IFSA	Investment and Financial Services Association
IPO	Initial public offering
ISS	Institutional Shareholder Services
NAV	Net asset value
PDS	Product disclosure statement
PGI	Poor Governance Index
RBA	Reserve Bank of Australia
REIT	Real estate investment trust
SEC	US Securities and Exchange Commission
SIS	Superannuation Industry (Supervision) Act 1993 C'wealth
SSRN	Social Science Research Network

ACKNOWLEDGEMENTS

This thesis is dedicated to my late father, Dr Norman Gold, my mother, and my daughters, Lily and Claudia. I am indebted to my supervisors, Dr Pamela Davy and Associate Professor Paul Ali of the University of Melbourne, who supported the development of this thesis and my well being.

This thesis could not have been completed without the assistance of many industry and academic colleagues. I am especially grateful to Alex Dunnin of Rainmaker Information for his support in providing data and extended knowledge of the investment industry; Brent Miles of Colonial First State whose expert knowledge of fund manager performance evaluation and econometrics made him an valued sounding-board; Professor Geof Stapledon of ISS Australia and the University of Melbourne for generously providing his expertise and data regarding corporate governance; Professor John Glynn, dean of the Graduate School of Business, for his practical support and mentoring; Professor Skip McGoun for his interest and encouragement, and whose thought-provoking and irreverent scholarship provided important motivation for this work; Dr David Edelman for his guidance in the initial stages of my research; Rosemary McLachlan of Finsia; Ben Wilmot and Ben Potter of *The Australian Financial Review*; Chris Condon of MLC Investment Management; Greg Hyland and Julie Orr of Standard & Poor's Australia; Anthony Serhan of Morningstar Australia; Chris Dionne; Dr Wanqing Li; Dr Mark Rix; other academic colleagues and friends. I was also a grateful recipient of a Commonwealth Government Australian Postgraduate Award.

To my family, who endured the hardships associated with this course of study, I am eternally grateful.

ABSTRACT

Australians have over \$1 trillion invested in fiduciary products such as pension funds (ABS, 2006a). Since the early 1980's, the policies of successive governments have compelled most of the working population to seek its fortune in financial markets. Over the same period investment has emerged, in its own right, as an important business discipline. Scholars have largely avoided critical examination of the discipline's scientific status, choosing instead to concentrate their efforts on refining tests of market efficiency. However, corporate debacles and episodic volatility in financial markets have fostered incredulity amongst stakeholders as to how the market actually operates. The overarching purpose of this thesis, therefore, is to evaluate the science of investment and to espouse a conceptual approach to investment which brings the scholarship and applied practices into closer alignment. Particular emphasis is placed on the funds management operations in the market.

Existing scholarship has analysed pricing outcomes assuming that economic norms are reflected in investing practices and financial markets overall. Critiques of the discipline's flagship theoretical models, however, find that they are disguised tautologies which have not imparted new knowledge, and as such, are pseudo-scientific. Little progress, it is argued, appears to have been made in the discipline since the formative precepts of investment were promulgated in the 1930s and 1950s. Despite the investment industry's economic stature, its microeconomic setting, product structures, and interactions with financial markets, have not been integrated into academic research. Ultimately, the vast majority of investors, being secondary investors, are captives of the industry's "gatekeepers". Winning the "investment game" is not, as investors might suppose, a strategy of maximising investment returns: in fact it is a risk-averse strategy of tracking average market performance overseen by the industry's gatekeepers. It is only the relative minority of primary, non-institutional, investors who need superior information of the industry's endogenous forces and constraints to outperform the market averages.

CHAPTER 1 – INTRODUCTION

This thesis is concerned with what is termed the “fiduciary finance industry” and the investment implications arising from its interaction with financial markets. This industry comprises various *financial fiduciaries* – including funds managers, pension fund trustees, financial advisors and custodians – and *fiduciary products* (such as pension funds and other collective investments) which provide intermediated investment exposure via financial and capital markets.

1.1 Research objectives

Investment is a specialised commercial endeavour however its scientific status is subject to conjecture, especially given episodic financial market volatility and recent corporate debacles. Australia’s compulsory retirement savings regime, which has evolved from policy initiatives of successive governments since the early 1980’s, has created a burgeoning constituency of investors participating indirectly in financial markets via fiduciary products.

Previous research has typically applied positivist empirical methods: inquirers have examined the entrails of market transactions in their attempts to discern deterministic constants about asset pricing, to develop predictions about those phenomena, and, to conjecture about the motivations of market participants. These modes of enquiry, however, have not yielded models with predictive efficacy, nor simplified the complex realities of financial markets. Concomitantly, the fiduciary finance industry’s workings have received only limited scrutiny (and some circumspection) from stakeholders. The extant literature has implicitly (and erroneously) assumed that financial markets exist purely to facilitate investment according to orthodox economic norms: the practical constraints which shape the fiduciary finance industry and its investment products have not been explicitly acknowledged.

Therefore, this thesis has three main objectives. First, it seeks to critique the scientific status of the investment discipline. Second, it explores topical themes which are pertinent to fiduciary finance. Third, using a sound research foundation more closely aligned with commercial market realities and emphasising factors which emanate from the fiduciary finance industry which are likely to influence marginal opinion (and thus security pricing), it provides a conceptual approach to investment.

1.2 Motivation of the thesis

The author gained experience in a career spanning more than 15 years in the fiduciary finance industry as an investment analyst and fund manager. This professional experience has informed the research direction of the thesis to introduce details of financial products, investment strategies, the markets for financial services, and to highlight the economic ramifications of an industry which now accounts for over \$1 trillion of investors' funds (ABS, 2006a).

Existing scholarship has typically depicted investment framed within the confines of portfolio management decisions and valuation judgments (security selections and “market timing” between the risky assets and cash). This literature has been dominated by a methodological approach which has prioritised the acquisition of knowledge about investment via *ex post* data rather than direct observations. This has resulted in theorising and focused empirical inquiries of increasing data frequencies and computational complexities; however, the fundamental constraints and limitations associated with these empirical methods – and thus, their practical value (or *meaning*) – appear to have been subsumed in the “doing” of the research.

Simultaneously, a significant omission from this literature has been explicit recognition that investment is a process which increasingly occurs within a broader context of financial intermediation: without acknowledgment that the applied investment practices

are dictated by the commercial realities of the investment *business*, significant discrepancies exist between its scholarly/intellectual treatment which has largely been informed by classical economic assumptions. The practices of the fiduciary finance industry have not been adequately reconciled with financial markets activity, despite the fact that the industry's fortunes, and those of financial markets and the real economy, are now intertwined.

The economic stature of the fiduciary finance industry can be attributed to government policies which have mandated self-funded retirement; however, it comprises a discrete and important "tertiary" economic system which aggregates capital for investment into financial markets. Thus, an informed approach to investment must be aware of the various economic agents and endogenous forces acting within this industry system. Accordingly, this thesis focuses attention on the "food chain" of advisory/distribution agents which exist in the tertiary markets of fiduciary finance to provide intermediation and to garner cash flows from the real economy. It also explores the commercial realities of the investment business which affect applied practices including: the fiduciary duties which are imposed upon fund managers and product providers; the specific constraints on portfolio management and security selection which are created by product rules; the competitive pressures within the industry which amend goal-seeking to peer product or market averages; the attendant agency conflicts existing within the industry's business model; the role of financial fiduciaries as effective monitors of investee firms; and, the macroeconomic and microeconomic factors affecting the flows of funds to issuers in the financial markets.

In advancing a conceptual approach to investment, this thesis provides an enhanced awareness of the financial markets in relation to their allocative efficiency and asset pricing function.

1.2.1 Previous research and publications

Previous work of the author has published in refereed journals of pre-eminent finance practitioner organisations including: *JASSA* (the official journal of the Financial Services Institute of Australasia (Finsia)); the *Company and Securities Law Journal* and *Derivatives Usage, Trading and Regulation* (the official journal of the UK Futures and Options Association). In addition, he co-authored *Corporate Governance and Investment Fiduciaries* (2003) Thomson Lawbook Co (with Paul Ali and Geof Stapledon) and *Socially Responsible Investments and Implications for Superannuation Trustees and other Investment Fiduciaries* (2002, University of Melbourne Law School) (with Paul Ali).

1.3 Structure and contents of the thesis

Chapters 2 and 3 orient the reader to the institutional environment of Australia's fiduciary finance industry, and the meaning of investment. Chapter 2 provides a descriptive and conceptual analysis of the fiduciary finance industry explaining how the products and services it offers are differentiated from those of traditional financial institutions (i.e. insurance and banking). This chapter also examines the characteristics of fiduciary products and the business models of the various economic agents (product sponsors, distributors, and investment managers) which comprise the industry's food chain. Chapter 3 examines the intellectual foundations of the investment discipline and highlights the significant influences upon institutional investment practices arising from fiduciary duties and product rules, and the measurement of "tradeable" markets: these features introduce some marked discrepancies between the scholarly depiction of investing and contemporary industry practices. Finally, a universal definition of investment is posited which emphasises the *ends* rather than the modes and processes (i.e. *how*) employed in this activity. This definition is an important precursor to the conceptual approach to investment which is expounded later in the thesis.

Chapters 4 to 6 address questions of epistemology and ontology regarding the scientific status of the investment discipline. Chapter 4 provides a holistic synthesis of the extant literature and examines scientific development within the investment discipline. This chapter employs a philosophical framework provided by Thomas Kuhn's *The Structure of Scientific Revolutions* (1996) to compartmentalise and evaluate the discipline's theoretical paradigms and their respective intellectual milestones. This synthesis identifies the underlying methodologies and principal models (or exemplars) which have evolved within the paradigms of investment research. This synthesis is necessarily selective: however, more comprehensive coverage of relevant literature is provided within the individual chapters of the thesis.

This thesis addresses questions of ontology – considered to be an essential precursor to the conceptual approach to investment which is expounded in the thesis – in two chapters (5 and 6). These chapters provide conceptual critiques of two “flagship” research exemplars of investment theory: the capital asset pricing model (CAPM) and performance evaluation studies (colloquially, the “active versus passive debate”). These exemplars are important and interrelated joint tests which have been used to affirm the theoretical notion of “informational efficiency” in financial markets and enjoy widespread currency within investment and corporate finance applications. Verification of these exemplars has been explored within a voluminous body of literature; however, they have not demonstrated predictive ability and remain afflicted by various anomalous findings. Some of these apparent “failures” have been attributed to seemingly plausible claims that economic models are “untestable”, or that the data captured from financial markets are non-ergodic.

Despite the significant scholarly efforts to refine these exemplars, significant attention has not been directed to the more subtle task of identifying the fundamental *causes* of predictive failures and anomalous empirical research findings. Existing verification efforts have used more granular datasets and complicated statistical procedures, and

relied heavily upon probabilistic inductions. By contrast, the conceptual critiques provided in these chapters employ *simplified* and *controlled* testing procedures and offer deterministic deductions to illustrate the methodological limitations and misspecifications residing within these exemplars. These chapters provide important critical insights into the scientific value and practical meaning of these exemplars (and therefore, the discipline's scientific legitimacy): these critiques reveal that both the CAPM and the active versus passive debate are essentially tautologies which disguise reality and must, therefore, be regarded as being only “pseudo-scientific” (or *meaningless*).

Chapters 7 to 9 inclusive, provide expanded knowledge of the endogenous economic forces which shape the fiduciary finance industry and its interactions with investee firms, and financial markets more generally. These features are explored using two separate and novel dimensions according to the theme of the “professional gatekeeper”. Chapter 7 analyses the economic influence of pension fund consultants: these important industry gatekeepers are the nexus between the portfolio capital of the pension funds segment and the distribution of fund flows amongst fund managers (and ultimately, invested in financial markets).

Although recent inquiries have noted the dependencies arising between pension fund trustees and their investment consultants (i.e. client-gatekeeper), this chapter undertakes a unique empirical analysis which documents the fund manager-gatekeeper (i.e. supplier-gatekeeper) interdependencies existing within fiduciary finance. Using proprietary data, this study examines investment mandate changes between 2003 and 2006 for a large and comprehensive sample of Australian not-for-profit pension funds with a combined value exceeding \$322 billion. Over this period, and despite the calls for “patient” investment, the pension funds surveyed on average replaced 34.9 per cent of their fund managers, resulting in the awarding of over \$92 billion in new investment mandates.

By cross-tabulating the mandates awarded to fund managers by the gatekeepers of the pension funds, it was revealed that virtually all of investment capital distributed amongst fund managers within the fiduciary finance industry was influenced by a small number of gatekeepers. The five largest gatekeepers exerted influence over approximately 95 per cent of all fund flows awarded to fund managers in Australia, while the average “lead gatekeeper” dependency (the amount of funds sourced from a single consultant) was approximately 50 per cent of the total assets awarded. This study quantified the significant power of these distributive agents and the business dependencies arising between fund managers and the gatekeepers: these insights are especially significant given that several gatekeepers have transitioned their business models to become “managers of fund managers”. Institutional investment should therefore be considered within the context of a highly regulated industry system where competitive dynamics may override fundamental valuation concerns.

Chapter 8 acknowledges that fund managers by virtue of their specialised expertise and professional credentials should be effective monitors of investee firms on behalf of their beneficiaries (i.e. gatekeepers of economic value). In the context of heightened corporate governance concerns and increasing stakeholder expectations that financial fiduciaries should use their ownership to encourage firms to adopt corporate governance “best practice”, this chapter scrutinises the premise that these gatekeepers, employing targeted investment strategies, can provide superior portfolio outcomes.

Using a theoretically-informed model of corporate governance, it analyses the investment outcomes and operational performance of a portfolio of “poor governance” firms selected from Australia’s largest 200 stocks which exhibited substantial “insider” ownership and non-conformance with promulgated best practice relating to the apex of corporate power. Using proprietary data sources relating to corporate governance practices and ownership structures, this study found that a “good governance” investment portfolio excluding

firms expected to face heightened corporate governance risk, sacrificed returns of between 5 and 13 per cent per annum, and had higher volatility than the broad stock market over the long term. These findings have important implications for institutional investor activism *per se*, and pension fund trustees targeting corporate governance: the latter may potentially breach their overarching fiduciary duty to maximise returns and minimise risks for the beneficiaries.

Chapter 9 outlines a conceptual approach to investment which draws on the insights developed throughout the extant literature and the knowledge documented in the thesis. This chapter provides a formalised response to the misspecifications of the existing theoretical conjectures, and incorporates the fiduciary finance industry's institutional structures and applied investment practices. The thesis concludes in chapter 10 with a summary of the contributions to the discipline, key research findings, limitations, and suggestions for future research avenues.

1.4 Publications arising from this thesis

A number of publications have arisen during the course of research undertaken while a doctoral candidate at the University of Wollongong including the following:

- “Equity issuance trends in Australia’s listed investment fund markets” in *Initial Public Offerings: An International Perspective* (Gregoriou, G. ed.), Butterworth-Heinemann, Burlington, 2006.
- “Investing in pseudo-science: the active versus passive debate”, *JASSA* (Spring) 2004.
- “Corporate Governance Reform: The Intersection of Investment Fiduciaries and Corporate Issuers” in *International Corporate Governance after Sarbanes Oxley* (P. Ali and G. Gregoriou eds.), John Wiley & Sons, New York, 2006.
- “Corporate governance, activism, and the role of trustees”, *JASSA* (Winter) 2006.

These publications include preliminary research presented in chapters 2, 6 and 8 respectively.

1.5 Summary

The essays presented in this thesis provide a holistic view of investment which encapsulates the theoretical framework and the commercial environment within which financial products are marketed and distributed to investors. It provides a critical evaluation of the extant literature and contributes new knowledge about contemporary industry practices, using unique datasets and research methodologies.

This chapter has articulated the research objectives of the thesis, its structure and contents, and outlined the motivation for the scholarly analysis of fiduciary finance.

CHAPTER 2 – AN OVERVIEW OF AUSTRALIA’S FIDUCIARY FINANCE INDUSTRY

2.1 Introduction

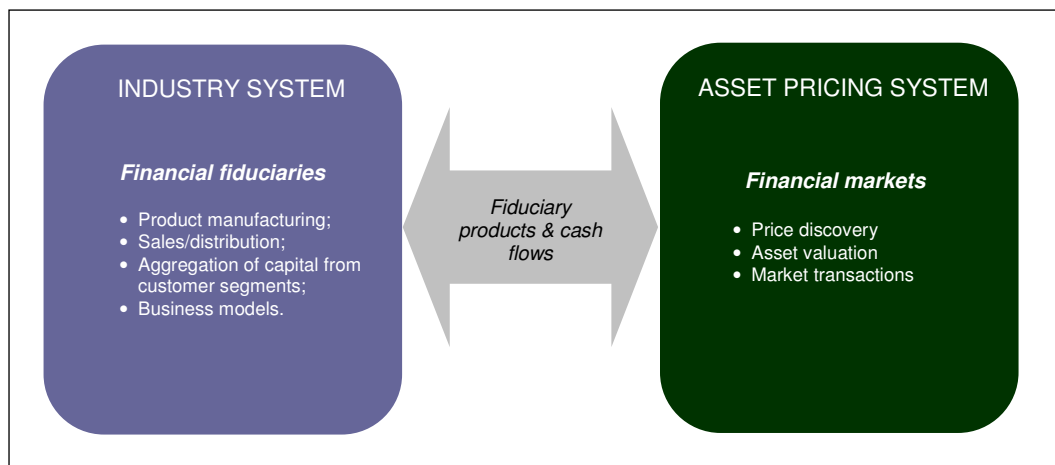
Within the literature, the exponential growth of fiduciary finance has been recognised albeit relatively recently (Del Guercio, 1996; Gompers and Metrick, 1999): its economic power (both latent and actual) and thus potential to affect financial markets has also received attention from financial supervisors (Committee on the Global Financial System, 2003). Some scholars have queried whether investment is in effect an institutionalised game, ascribing the growth in fiduciary products and financial markets to a range of sociological phenomena including “sociohistorical artifacts” (Allen, McGoun and Kester, 2000). Overwhelmingly, however, in Australia and many other countries, a culture of “risk-sharing” has been mandated by government policies which have shifted responsibility for financial security in retirement to individuals.

Whilst this industry is typically depicted by scholars within a relatively narrow frame of portfolio management decisions – the allocation of capital between financial markets and selections of financial securities – this fixation has obscured the overarching function of this industry which is to aggregate savings and to distribute funds amongst service providers, in accordance a legal bargain which typically comprise “investment promises” (discussed in section 2.2).

This capital aggregation system incorporates a myriad of product/compliance structures (i.e. pension and mutual fund segments) which are the “point of capture” for consumers’ funds and a “food chain” of economic agents whose functions generally are not explored in detail within the investment literature.

This thesis is concerned with the fiduciary finance industry and the investment implications arising from its interaction with financial markets. As figure 2.1 illustrates, the asset pricing function provided by financial markets may be considered as a consequence of antecedent capital aggregation and transactional flows occurring within what can be termed the “tertiary markets” of fiduciary finance.

Figure 2.1 Fiduciary product flows and financial market transactions



This chapter provides an overview of Australia’s fiduciary finance industry which examines its history, economic rationale, food chain, economic profile, product lines/investment strategies, and its “footprint” in the financial markets.

2.2 Differentiating fiduciary finance from traditional financial institutions

Fiduciary finance can be defined broadly as a specialised commercial activity concerned with the provision of administration, advice and selection of *investments* and encompasses the following:

- Provision of portfolio administration services (such as asset custody, account-keeping, cash-flow/liquidity management), and investment selections;
- Intermediated capital market exposure via securitised interests in commingled investment portfolios which do not usually create any direct entitlement to portfolio assets;¹
- Provision of financial services with a commercial rationale/business imperative of achieving economies of scale and increased profit for the fiduciary;
- Operation of an investment strategy – a specified economic “bargain” – effected by an investment specialist (such as a funds manager) via a contractual arrangement known as an “investment mandate”;
- Separation of legal ownership and control of assets which creates a fiduciary relationship² with specific obligations owed by the financial fiduciary to its client (i.e. the ultimate beneficiary);
- Aggregation of funds from savings sectors into fiduciary products through the industry’s tertiary market/economic sub-system (or “food chain”); and,
- Specialised knowledge and expertise in regard to wealth management and financial affairs generally.

¹ There are few exceptions to this. Institutional investors may effect their investments and redemptions *in specie* (in-kind) rather than cash transactions. Also, exchange-traded funds (ETFs) may permit *in specie* portfolio transactions (see section 2.7.3).

² Under this fiduciary relationship, the service provider is obliged to satisfy the terms of its commercial bargain with the customer, to act in the clients’ best interest, and exercise care when dealing with their funds at all times.

From an *investment* perspective, and when compared to investing directly into financial markets, fiduciary products offer significant advantages which are primarily achieved from the scale efficiencies generated from the pooling of investors' funds:

- Dedicated professional management and access to specialised expertise;
- Efficient information collection and processing;
- Access to opportunities residing within global capital markets;
- Superior portfolio diversification;
- Lower trading costs; and
- Simplified portfolio administration and reporting.

Pozen (2002) has described fiduciary products as a relatively pure “pass-through” financial intermediary: they rarely promise repayment of the customer’s original capital contributions, nor give a predetermined rate of return on that capital. Essentially, therefore, fiduciary products provide “investment promises” which are fulfilled from an investment strategy which is detailed in product disclosure statements (PDS) which accompany offers of these products to investors.

Under Australian securities regulations, potential investors must be provided with sufficient information about a fiduciary product and its investment strategy to be able to make an informed decision. Further, in the context of financial services intermediation, sales intermediaries and financial advisers must demonstrate that have provided appropriate advice which has taken the customer’s individual circumstances (known as “know your client”) and the features of the fiduciary products (known as “know your product”) into consideration (ASIC, 2005a, 2005b).

As shown in table 2.1, the economic proposition of fiduciary finance contrasts markedly with the “return promises” offered by traditional financial institutions and necessitates different structures and regulatory regimes. For example, banks make specific promises to their depositors (which are independent of financial market returns, interest rates, and other economic risks) whereas insurers make contingent return promises (returns are guaranteed but are contingent upon certain specified events such as the policyholder’s economic loss, personal injury or death).

Table 2.1: Financial products, promises and prudential regulation

	Bank/Lender	Insurer	Financial fiduciary
<i>Product</i>	Current or term deposit account	Insurance policy	Fiduciary product labelled according to compliance regime: i.e. pension fund or mutual fund
<i>Return promise</i>	Specified rate of return (interest rate)	Returns contingent on event; and/or investment portfolio	Returns generated from the specified investment strategy
<i>Liability structure & management</i>	Financial liabilities to customers recorded on balance sheet	Assets and liabilities segregated/hypothecated but supported by insurance guarantee; regulated portfolio	Assets and liabilities of product segregated from sponsor
<i>Regulatory regime</i>	Risk-adjusted capital adequacy	Solvency	Licensing of financial fiduciaries; product disclosure
<i>Recourse to sponsor</i>	Depositors have higher ranking than owners/shareholders	Policyholders have priority claim behind other creditors but higher ranking than owners/shareholders	No recourse to capital base of product sponsor or investment manager

Banks and other deposit-taking institutions record their obligations to customers (liabilities) on their balance sheets and manage their financial resources (on and off-balance sheet) to ensure that these return promises are fulfilled. This entails managing any accompanying asset-liability mismatch. Similarly, insurers support their contingent customer promises by segregating them into different pools of liabilities and using hypothecated asset portfolios to manage any asset-liability mismatch (and to maintain solvency). Insurers transfer risks from their customers, however, their promises are generally long term and can be quantified actuarially according to prior claims

experience. In addition to customer premiums (which incorporate a margin on the capital supporting these products), insurers also generate surpluses from the asset portfolio returns which may be shared with the policyholder only if it holds a “participating” policy.

In contrast to other financial products, fiduciary products are not subject to any significant asset-liability mismatch and their assets and liabilities are fully segregated from the financial fiduciary. In Australia, unit trusts are the most common legal instrument interposed between the beneficiaries and the underlying investment portfolio. As figure 2.2 shows, external custodians which hold legal title to the assets of the fiduciary product (on behalf of the ultimate beneficiaries) provide an additional safeguard of investors’ interests. The principal obligations owed by financial fiduciaries to their clients are limited, therefore, to operating the investment strategy and fulfilling administrative/service standards which comprise the “commercial bargain” outlined in the PDS: the financial fiduciary does not normally employ its own resources to support portfolio returns.

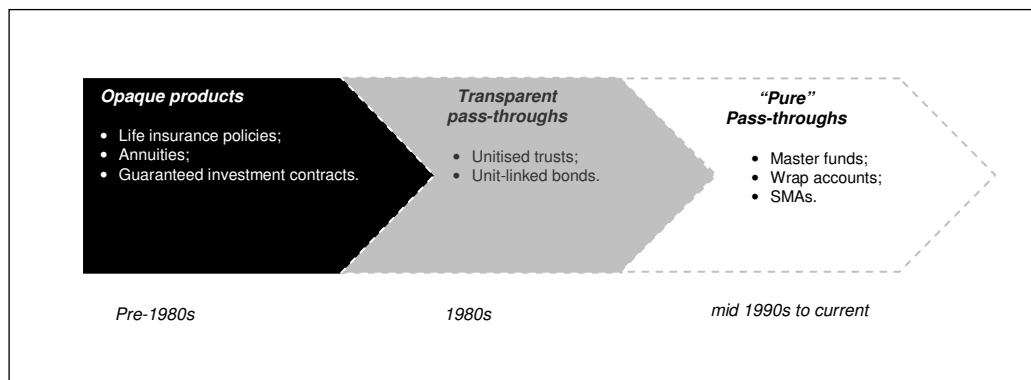
Figure 2.2: Functional separation of the financial fiduciary and its products

2.3 The origins and evolution of the fiduciary model of investing

The predecessors of contemporary fiduciary products in Anglo-Saxon countries were closed-end investment trusts which emerged in Holland in 1774, Britain in 1868 and America in 1890 (Hutson, 2005; Rouwenhorst, 2004). Hutson (2005) has noted that the first true investment fund appeared in Britain in 1868 and the investment trust industry remained largely a British phenomenon until the development of open-ended mutual funds in the United States during the 1920s. In Australia, the first mutual fund – the Australian Foundation and Investment Corporation – was listed on the ASX in 1928 (Mees, Wehner and Hanrahan, 2005).³

As figure 2.3 shows, the evolution of fiduciary products has been accompanied by trends to “un-bundle” investment exposure from insurance and other financial services, providing increased transparency in the investment strategies offered.

Figure 2.3: Innovation and evolution of fiduciary products



The predecessors of the contemporary “pass-through” fiduciary products were guaranteed investment contracts (GICs) and insurance policies issued by life insurance offices, trustee companies, and friendly societies. GICs provided customers specific and certain payoffs; most paid a lump sum to the holder at the end of a fixed term, or paid an annuity income stream for a specified period. These return promises were made under the

³ Appendix 1 contains a chronology of important fiduciary finance industry developments.

umbrella of an insurance guarantee which was supported by a regulated asset portfolio. Purchasers of GICs were shielded from the volatility of financial markets: the investment portfolios which supported their return promises were opaque to the policyholder and there was no need to monitor the investment portfolios because the insurer ultimately guaranteed the product promises from reserves and its financial resources.

From the early 1980s, life insurers devised new types of contracts including “capital guaranteed” investment bonds. These products were backed by a diversified, long-term investment portfolio and reserving techniques were employed whereby the full returns earned by the asset portfolio were not credited directly to customer accounts. Instead, the insurer “smoothed” returns and part of the return earned on the asset portfolio was transferred to reserves supporting the capital guarantee (provided on initial contributions and/or the returns subsequently credited to the policyholder).

Insurers also created “unit-linked” bonds whose returns fluctuated according to the performance of their investment portfolios (in contrast to capital guaranteed policies). These insurance bonds were typically “bundled” with term, death and disability insurances offered for additional premium contributions. These products usually imposed considerable surrender penalties for early termination for reasons of equity (to stop short-term trading in policies) and to protect the product’s profitability.

The development of Australia’s fiduciary finance industry has followed the trends of financial deregulation and product innovation witnessed offshore. As Pozen (2002) has noted in the US, the product innovation of money market mutual funds was the genesis of the industry’s subsequent growth. These fiduciary products offered investors higher returns than the interest-bearing accounts offered by banks without any up-front commissions and lower management fees than traditional stock and bond mutual funds. In December 1980, Hill Samuel Australia (now Macquarie Bank) established the Hill

Samuel Cash Management Trust (now Macquarie Cash Management Trust) which, as at 30 June 2006, was the largest retail managed fund in Australia with a product size of \$12 billion management (Macquarie, 2006).

By the mid-1980's, several merchant banks (including Bankers Trust, County Natwest, Dominguez Barry Samuel Montagu, Hambros and Wardley) established specialised funds management businesses to cater to the emerging market for retirement and investment products, joining established trustee companies such as Perpetual Trustees which had earlier established the Perpetual Industrial Share Fund in August 1966 catering to individuals and foundations: as at 31 August 2006, the value of this fund was approximately \$14 billion (Perpetual, 2006). Trading banks and life insurance offices also began offering investment trusts which could be distributed by non-affiliated financial advisors.

As shown in figure 2.3, investment platforms (also known as “wrap accounts”, “master funds”, investor-directed portfolio services” and “separately managed accounts”) are the latest iteration in fiduciary products: they provide a pure pass-through investment proposition. The platform operator maintains an investment “menu”, and investors make their own selections from this menu, typically in consultation with a financial adviser. The financial fiduciaries which sponsor investment platforms are principally concerned with providing the administration infrastructure for client portfolios and effecting their transactions, but not undertaking valuation judgements and investment selections *per se*.

Importantly, whilst these products offer a pure pass-through investment exposure, they support, rather than diminish financial intermediation overall, and have become the dominant source of new funds flows in the industry (discussed further in section 2.7).

2.4 The economic rationale of fiduciary finance

The economic significance of fiduciary finance has previously been recognised as extending far beyond investment and portfolio management functions, into the real economy. Clarke (1981) has characterised the industry's evolutionary development in four stages which have sustained and shaped the modern capitalist system. First, as the *promoter, manager and investor* it facilitated the formation of capital for entrepreneurial investments in the nascent economic enterprises and government sectors of the late nineteenth century. Second, it hastened the rise of the *business manager* as the burgeoning popularity of the public corporation resulted in the separation of ownership and control. Third, it created the specialised and professional function of the *portfolio manager* which makes specific decisions regarding the deployment of investment capital, risks, and liquidity. Finally, in its ultimate manifestation as the *savings planner*, it interacts with individual savers to determine how and why capital should be supplied for investment purposes (and is this central to the health of the entire economic system).

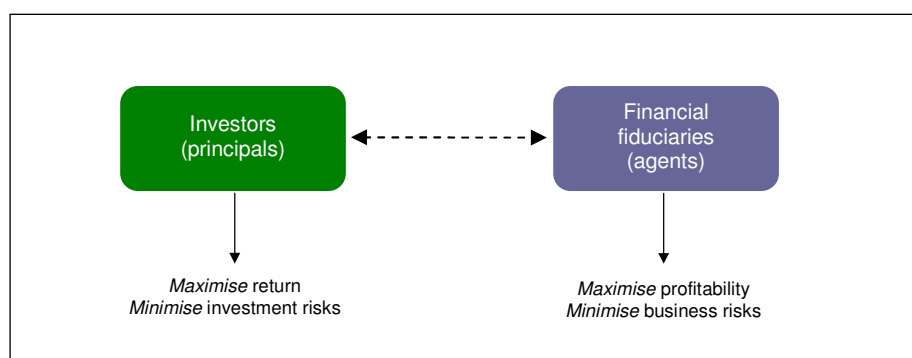
2.4.1 The financial fiduciary business model

Financial fiduciaries typically operate according to a commercial rationale which emphasises profit maximisation for their owners. The nature of ownership has considerable implications for financial fiduciaries. Ellis (2001) has noted that the increasing levels of institutional ownership within funds management firms in the US has resulted in *business* disciplines dominating *investment* disciplines: he warned that this could create undesirable consequences for both clients and investment personnel. Berkowitz and Qui (2003) compared the performance of Canadian mutual funds managed by public and private management companies and found that publicly-owned fund managers invested in riskier assets, charged higher management fees, and delivered lower risk-adjusted returns to investors compared to privately-held groups.

As in any other commercial enterprise, financial fiduciaries are must mitigate business risks, and generally do not assume financial market risks, or the idiosyncratic risks associated with investment strategies they offer. As shown in figure 2.4, the divergent objectives existing between of financial fiduciaries (as agents) and their clients (as principals) are suggestive of an inherently-conflicted position. However, in practice, principal-agent concerns are mitigated by the fiduciary product design (i.e. specified investment objectives and policies; remuneration; service standards), the homogeneity of available fiduciary products, the existence of significant competitive pressures in fund markets, and the frequent performance monitoring actions of specialised industry gatekeepers such as pension fund consultants (discussed in section 2.7 and chapter 7).

Under industry conventions, fees are generally charged on a fixed or scaled percentage of assets. Although there has been commentary about performance-based fee structures, especially in the context of negative market returns, these have not been widely used by most pension funds (RBA, 2003). Overwhelmingly, therefore, fees in the industry are charged independently of the return outcomes received by the client.

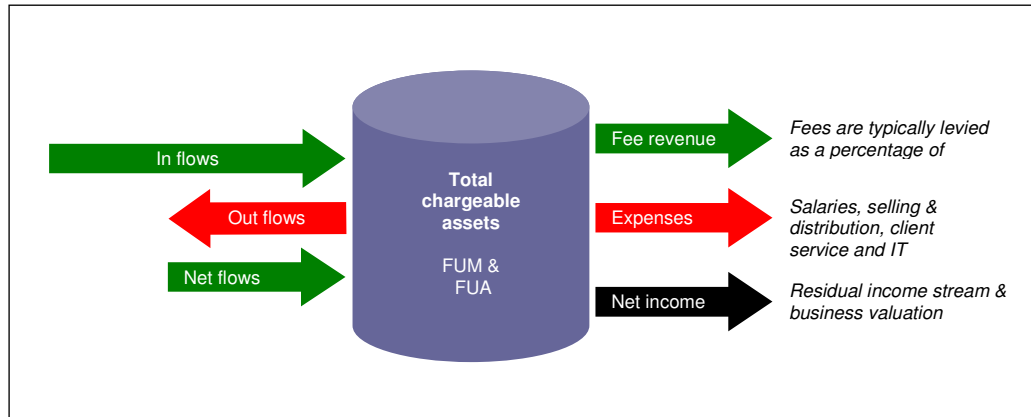
Figure 2.4: The divergent objectives of financial fiduciaries and investors



As shown in figure 2.5, the profitability of the fiduciary finance *business model* is linked primarily to the scale (i.e. quantum of value) of total assets under management (funds under management or “FUM”, and funds under advice/administration or “FUA”). The principal revenue driver are management fees charged according to asset scale, which is

dependent upon net fund inflows and the “organic” growth arising from asset appreciation in portfolios managed by the fiduciary.

Figure 2.5: The fiduciary finance business model



The financial fiduciary maximises its profitability by managing costs in the following areas: investment personnel (the “front office”); performance reporting/analytics (“middle office”); the “back office” functions of portfolio administration, fund accounting, and compliance infrastructure; sales and marketing support (including commission payments to distributors), client registry and customer service.⁴

In addition to funds management fees derived from fiduciary products for investment services, other operating expenses may be charged (e.g. custody, accounting, audit, banking, legal) although these fees may not accrue to the fund manager itself. The total costs of fiduciary products are reflected in the management expense ratio (MER) – a standardised industry ratio – which is intended to show investors the extra costs incurred by using an unlisted managed investment vehicle (IFSA, 2000: 4). For competitive reasons, financial fiduciaries may voluntarily absorb a portion of a product’s operating costs, including their own fees, by “capping” the MER.

⁴ For a detailed functional description of the participants in the various “offices” of fiduciary finance, see Myners (2001: 74).

2.5 Industry sales and distribution

Financial fiduciaries should be considered as “manufacturers” of investment portfolios. Although Australia’s compulsory occupational superannuation regulations have mandated employee contributions (i.e. cash flows) into the pension funds segment, fiduciary products still need to be *sold* to customers. As in other industries, therefore, significant reliance is placed upon a more complex economic sub-system of sales and distribution agents which aggregate cash flows from investors.

Figure 2.6 shows a simplified “value chain” of fiduciary finance and the indicative distribution of wealth (shown in basis points) amongst the various service providers for a typical “retail” fiduciary product.⁵ What is apparent is that a significant proportion of the total revenue collected from customers is captured by distributors rather than the manufacturers (investment managers and fiduciary product sponsors).⁶

Figure 2.6: A simplified fiduciary finance “value chain”

⁵ The schematic illustrates a conventional retail fund: where a fiduciary product is distributed via an investment platform, the manufacturer’s fee will be lower and balance of the revenue split may shift towards the distributor.

⁶ There is, of course, a significant difference between *fee capture* and *profitability*: distributors incur significant overheads and compliance burdens, whereas manufacturers usually have more scaleable costs.

Over the past decade, sales and distribution functions within the fiduciary finance industry have taken an increased importance because of the significant overcapacity in product manufacturing, the homogeneity of products offered: these trends have been observed in offshore jurisdictions (Rajan and Ledster, 2004). These trends have been accompanied by the intense competitive pressures operating within fiduciary product markets which have created convergence in product structures, administrative technologies, and investment portfolios.

Traditional financial institutions which have recognised the need to gain a larger share of the “consumer’s wallet” and the burgeoning wealth of the pension segment, have been particularly active instigators of the rapid consolidation occurring within the industry (discussed further in section 2.5.3). These players now capture the bulk of funds flows – and thus, economic value transferred from customers –within the industry’s food chain.

2.5.1 Wholesale versus retail market segments

Historically, a delineation existed between “retail” and wholesale” distribution which was determined by the customer segments targeted in the fiduciary finance industry. Where funds were solicited from individual investors, this was known as “retail” distribution, whereas, if pension fund trustees or corporations were the customer targeted, this was regarded as “wholesale” distribution. As discussed further below, the emergence of investment platforms as the dominant model of distribution has blurred these distinctions: for providers of investment services, investment platforms are therefore critically important wholesale customers.

The characteristics of the wholesale and retail market segments, in terms of revenue and profitability, differ significantly. Because of the need to continually extract scale efficiencies, deciding to service either or both market segments is an importance business consideration for financial fiduciaries. Wholesale distribution is a high-volume but low-

margin business, resulting in lower fees being charged. However, within wholesale markets, competitive forces are marked and investor mobility is high because the overwhelming emphasis is on portfolio performance outcomes, rather differentiation from customer service, administration and marketing (performance aspects are discussed in detail in chapter 7). This segment is a “business-to-business” offering, and as such, client service and administration costs are relatively low because the “customers” in this segment are the client-facing intermediaries which interact with the ultimate customers. In this market segment there are no direct selling costs and the placements into wholesale funds do not usually generate commissions for the intermediary.

By contrast, in retail distribution, where significantly higher management fees are charged, a significantly more complex customer service proposition is offered: a proportion of the financial fiduciary’s gross management fees (a direct cost of sales) are paid to intermediaries (financial planners and investment advisers) as “front-end”, “trailing” and “back-end” commissions. In addition to the significant spend on brand and marketing required, retail markets generally demand extensive client service functionality (phone and online transactions, client services, publications and product switching facilities): these require associated administration infrastructure, personnel, and information technologies. Competition within the retail market segment is also substantial, however, investor mobility is lower than wholesale markets. Financial fiduciaries also benefit from the periodic nature of client portfolio reviews conducted by financial advisers, which can lessen the possibility of product outflows. The delineation between wholesale and retail segments has been blurred by the pivotal development within the industry’s distribution system: investment platforms (discussed further in sections 2.5.2 and 2.6.3). In order to service investment platforms profitably, many fund managers have introduced “mezzanine” funds which charge fees which are higher than wholesale funds, but significantly lower than retail products (IFSA, 2000).

2.5.2 Models of distribution

Within the industry, three main distribution models operate: depending on the size of the financial fiduciary and the complexity of the customer segments it services, a combination may be used. At one extreme, the *direct* (or non-intermediated) channel involves solicitation of funds directly from the consumer. This is primarily achieved through a branch network of “shop fronts” and internet portals. The second *internal distribution* employs “tied agents” which are employed by the organisation and sell its products exclusively. The third, and most prevalent model employed, is an *open architecture* (or platform) distribution system where financial fiduciaries offers products on distribution platforms (or may sponsor an investment platform) which is then accessed by non-aligned financial intermediaries (discussed further in section 2.6.3).

2.5.3 Emergent trends

Significant integration and consolidation trends have occurred within the industry. The economic imperative of capturing an increasing proportion of revenue within the industry has prompted vertical and horizontal consolidation activity, resulting in significant rationalisation amongst industry players. As table 2.2 shows, in excess of \$277 billion in FUM and FUA have changed hands within Australia’s fiduciary finance industry.

This corporate activity has been motivated by product manufacturers acting to ensure that they are not literally “crowded out” of the marketplace, and others seeking to recapture margin which has been lost to distributors in the industry’s value chain. Traditional financial institutions have actively sought the fee-based income streams and high growth rates offered by fiduciary products relative to traditional savings, loans and insurance business lines; and they have looked to leverage their internal distribution networks for cross-selling opportunities.

Over the past decade, consistent with trends witnessed offshore, Australian investment management fees and charges have contracted, despite increasing product complexity and regulatory burdens. Simultaneously, the proportionate share of revenue captured by distributors and sales intermediaries (as shown in figure 2.6) has expanded (PricewaterhouseCoopers, 2006; Rajan and Ledster 2004; Axiss Australia, 2004a). Some funds managers, facing increased competition and the high fixed costs of internal sales/distribution infrastructure, have adopted a “pure manufacturing” model specialising in portfolio management services. These so-called “boutique” funds managers, have also experienced significant growth as investment personnel have established firms offering a specialised, manufacturing focus.

2.6 Types of financial fiduciaries

Within the fiduciary finance industry, varying degrees of functional specialisation and business operations exist. Some participants operate in discrete, specialised functional areas such as portfolio management or custody, while others are truly full-service conglomerates which offer comprehensive and integrated services. The following section therefore describes the main types of financial fiduciaries comprising the industry's food chain.

2.6.1 Funds managers (product sponsors) and investment managers

As shown in figure 2.6, fund managers are the manufacturers in the industry's value chain: they sponsor fiduciary products and manage the investment portfolios of the "house" branded and/or externally-sourced funds. They may also manage investment portfolios on behalf of institutional clients (including other fund managers) under discrete investment mandates. According to Axiss Australia (2004a) approximately 100 substantial funds managers operate in Australia. The data compiled by Standard & Poor's Australia shown in table 2.3 which measures those firms involved with security selection and asset allocation (rather than FUM capture) reveal that market share in "pure" investment management is highly concentrated with nearly two-thirds of total assets managed by the ten largest providers.

Table 2.3: Largest fund managers

2.6.3 Investment platforms

Investment platforms are “beneficiary choice” fiduciary products which offer portfolio administration services and support a wide range of investment options. Traditional financial institutions, broker/dealer groups, asset consultants, and commercial trustees all sponsor investment platform products, and they are the primary source of distribution for Australian fund managers. This model effectively outsources sales and distribution to independent intermediaries such as financial planners (see 2.6.4 below). Financial fiduciaries can therefore use platforms to distribute fiduciary products, thereby enabling them to specialise in product design and/or investment management manufacturing capabilities.

Many large financial institutions, however, have sponsored investment platforms to ensure that they can capture part of the cash flows aggregated from clients directly into their own “house” branded products. This strategy allows them to earn margin from the value chain (as fund managers), while simultaneously achieving scale-based fee income from customers’ overall portfolios (as administrators). Investment platforms have been an extremely successful product innovation in their own right and recent research has also shown that very high “retention rates” are achieved from investors’ wealth flows: more than 50 per cent of the funds placed into investment platforms are invested in the house branded fiduciary products of the platform sponsor providing significant recapture of profit margin which would otherwise be paid to external providers (Barrett, 2007).

As table 2.4 shows, there are high levels of market share concentration in this segment. According to Standard & Poor’s (2006b), the platform market grew by over 110 per cent to \$331 billion (representing approximately 33 per cent of the total industry’s assets) in the three years to 30 June 2006: over \$34 billion of new funds flows were generated in the last twelve months (approximately 85 per cent of the industry’s total net retail funds flow over this period).

The success of platforms has given them the capacity to exert influence over investment management providers which has attracted heightened regulatory scrutiny. In particular, some platform operators have commenced charging fund managers fees to distribute their fiduciary products (i.e. be included on the platform's investment menu). Precedents for these arrangements exist in other industries: manufacturers/suppliers pay "shelf space" fees (for permanent space on retailer's shelves) and "warehouse" fees (which cover the costs of distributing inventory to distributors and retailers). The main concerns expressed by regulators in Australia is that the platform operators have not adequately disclosed their pecuniary interests, and by restricting access to those providers who will pay shelf space fees, they have potentially created conflicts of interest whilst compromising the quality of fiduciary products and advice offered to clients (ASIC, 2006).

Table 2.4: Largest investment platforms

The dramatic growth of investment platforms can be attributed to five main factors. First, financial advisers and sales intermediaries can use platforms to offer their clients a broad range of investment choices which are not necessarily allied to a particular funds manager, and may also include direct equities, real estate trusts and alternative investments. Second, the investment management fees payable for fiduciary products on the platform menu may be significantly lower than retail funds. Third, platforms allow intermediaries to consolidate administration and reporting of all client assets; effectively,

they can outsource all back office functions to the platform provider which simplifies their business operations, and enhances profitability. Fourth, intermediaries can charge advisory fees on an *ad volarem* basis for the entire portfolio and thus access residual income streams (trailer commissions) which are paid by the platform provider from its administration fees. Finally, strategic alliances exist between dealer groups and platform providers: it is increasingly common for platform providers to own equity in the dealer groups (or vice-versa).

2.6.4 Financial planners/dealer groups

Australia's financial planning industry originated from life insurance brokers who distributed insurance products on a tied, multi-agent, or independent basis according to the types of business they sold. Prior to the granting of the first "financial advisers" in 1970, which allowed those who had previously been employed as insurance sales people to provide financial advice, these services were typically provided by stockbrokers (Mees, Wehner and Hanrahan, 2005).

Historically, different licenses were issued depending on the type of intermediary: life insurance brokers selling insurance product were regulated separately: firms providing fee-based advice were licensed as "investment advisers" but were not permitted to deal in securities and earn commissions; stockbrokers, brokers and dealers in securities which were licensed as "securities dealers" and were permitted to provide advice and derive commission/brokerage income. Today, financial planners are typically clustered under franchised groups of broker/dealers and the distinctions between "insurance brokers", "financial advisers" and "securities dealers" were removed following the introduction of uniform licensing under the *Financial Services Reform Act* (FSR) in 2004.

According to IBISWorld (2004) over 4,100 financial planning firms operate in Australia employing 20,600 people. As shown in Table 2.5, the largest 100 dealer groups employ

over 13,000 financial planners throughout Australia. Institutional ownership of these intermediaries predominates with every major financial institution owning a dealer group: banks have been very active in the financial planning industry and own 12 out of the top 20 dealer groups, and approximately 26 per cent of the financial planners in Australia (Axiss, 2004b).

Table 2.5: Largest Australian dealer groups

As shown in figure 2.6, the primary function of these intermediaries is providing advisory and transaction services to clients, and managing the client relationship between the financial fiduciary (as product sponsor and/or funds manager) and the ultimate investors. In practical terms, therefore, these intermediaries “own the client” and they are responsible for devising investment advice and structures which meet the client’s financial needs whether they are individual investors, trustees of pension funds, or institutions. Larger dealer groups are equipped to offer services across the whole spectrum of clients, while smaller firms may specialise in providing services to individual investors.

The principal revenues derived by these firms are account-based advisory fees and commissions/brokerage. Historically, front-end commissions generated from transactions in fiduciary products and other securities were the main revenue contributors, however,

due to regulatory concerns and increased consumerism, most have migrated to a “fee-for-service” basis where their revenues are generated from periodic portfolio reviews, account administration and monitoring, taxation and accounting services. In addition to charging fees directly to their clients, these intermediaries are usually entitled to earn residual income (trailer commissions) according to the scale of clients’ balances they administer via platforms or individual fiduciary products. Due to onerous compliance regulations, many dealer groups have internal research functions which provide recommendations on fund managers, fiduciary products, equities and other securities: others have chosen to outsource this function to specialised industry gatekeepers known as “research houses” and “asset consultants”.

2.6.5 Research houses and asset consultants

Research houses and asset (or investment) consultants are important reputational gatekeepers of fiduciary finance: their opinions and recommendations directly affect the flows of funds within the industry’s tertiary markets, and thus, the business profitability of financial fiduciaries. As is discussed further in chapter 7, these specialist investment advisers exert influence over the trustees of pension funds and investment platforms in wholesale markets, and the “recommended lists” of financial planners serving retail markets.

Under the prevailing securities regulations, financial intermediaries must demonstrate a clear rationale for their advice and product recommendations to clients: they must possess research which is current and independent of the sales/advice process, and demonstrate that product recommendations are appropriate given the client’s individual circumstances (ASIC, 2005a, 2005b). Under these onerous obligations, it is common practice for broker/dealers to use research houses and asset consultants to construct approved lists of fiduciary products and securities from which “compliant” selections can be made for customers. In the area of investment platforms, gatekeepers have an especially important

role because investment managers and product manufacturers must gain gatekeeper approval before they are considered for inclusion on the investment menus of the platform. Adverse recommendations, non-coverage, or discontinuance of coverage from these gatekeepers, therefore, have immediate and deleterious effects on funds flows and asset scale.

Research houses originated as internal research providers for broker/dealers and advisers, accompanying the growth of the retail funds industry in early 1980s. They were considered independent and generally did not share any ownership links with product manufacturers and other participants in the food chain. Over time, these intermediaries have been acquired by manufacturers or have changed their business models to charge both intermediaries and product manufacturers for their research services. There has been continued scrutiny of gatekeeper independence, given the significant concentration of market share within the industry, the potential for conflicts of interest arising from the influence they exert over trustees (clients) and fund managers (suppliers), and varying levels of ownership held by financial institutions.

Whilst asset consultants have traditionally provided actuarial consulting services to pension fund trustees/corporate sponsors, several gatekeepers recognising the inherent limitations of the traditional fee-based business advisory model, have migrated to a funds management model (discussed in detail in chapter 7). They have established their own branded fiduciary products known as “implemented consulting” schemes – an important fiduciary product innovation which has attracted significant controversy. Under these schemes, pension fund trustees invest into a fiduciary product which sponsored by the asset consultant, and which chooses the underlying funds managers (rather than directly with the underlying fund manager). In effect, the traditional supplier-customer relationship between the trustees and their fund managers has been broken and the asset consultant becomes the “manager of funds managers”.

2.6.6 Custodians

The role of the custodian is to effect the separation of legal ownership between the funds manager and trustee (and therefore, the investors), and settling transactions in the portfolio under instructions from the trustee. The custodian is the registered legal owner of the portfolio's securities who holds these in trust on behalf of the trustee (and the ultimate beneficiaries). Separate custodians (sub-custodians) may be used and custodians are typically responsible for providing investment performance evaluation services to pension fund trustees.⁷

2.7 The economic profile of fiduciary finance

The following section illustrates the comparative economic size and growth of the fiduciary finance industry versus traditional financial institutions. It also describes the main compliance/product structures which provide the point of capture for the industry's assets and funds flows.

2.7.1 Industry size and growth

In nominal terms, the industry's economic profile has increased significantly with total industry assets rising from \$109 billion to over \$1 trillion over the past fifteen years (ABS, 2006a). Australia's funds management market was estimated to be the fourth largest in the world, representing approximately 4 per cent of the global industry's assets, as at December 2005 (Axiss Australia, 2006).

A recent sectoral analysis completed by the ABS has reinforced the importance of pension funds as the principal point of capture of consumers' investment flows: households (i.e. investors) held claims against pension funds of \$871 billion, life insurance offices of \$60 billion, and pension funds had claims against life insurance offices of \$154 billion as at 30 June 2006 (ABS, 2006b: 11).

⁷ Refer to Ali, Stapledon & Gold (2003) section 1.4 for a comprehensive discussion of custodial arrangements.

As table 2.6 shows, the asset base of the fiduciary finance industry has been overshadowed by traditional financial institutions, although its proportionate share of financial system has increased marginally over time.

Table 2.6: The asset base of Australia's financial system

These data, which are expressed on a “gross assets” basis, arguably understate the latent economic power and growth of the industry because they do not take into account the financing of these assets. Whereas traditional financial institutions employ significant financial leverage, fiduciary products are generally prohibited from borrowing (other than for the purposes of funding short-term liquidity) or using derivative instruments to leverage the economic exposure of portfolios.

The impetus for growth in fiduciary finance has been the retirement income policies of successive federal governments, which since the mid-1980s, have made superannuation contributions mandatory (and assured funds flows into the industry) for the bulk of the working population. In 1986, the Hawke government introduced compulsory superannuation (in the form of ‘Award Super’) compelling many employees subject to industrial agreements and awards to accept at least 3 per cent of their salary increase in the form of deferred remuneration: employer superannuation contributions. In July 1992, universal coverage was introduced under the superannuation guarantee charge (SGC), currently 9% of salary (further details are provided in appendix 1).

The industry's growth has also been masked by structural changes occurring within the financial system since financial deregulation in the early 1980s, and shifting asset preferences of Australian households.⁸

The deregulation of the Australian financial system in the early 1980s saw traditional financial institutions aggressively expanding their balance sheets through capital raisings, funding from offshore sources, and increased usage of securitisation transactions. Changes to capital adequacy requirements during the 1990s also encouraged lending institutions to expand residential mortgage lending. The increased availability of credit also created significant indebtedness by the household sector which participated in the strong growth in real estate values. Therefore, a more relevant comparison of growth rates can be ascertained by analysing the financial asset holdings of the household sector.

Table 2.7 shows that since July 1992 (when universal superannuation was introduced) the asset growth of fiduciary finance institutions has outstripped all other financial holdings in the household sector.

Table 2.7: Growth rates in financial asset holdings

⁸ Residential real estate remains an attractive investment because the principal place of residence is generally free of capital gains. The returns of fiduciary products are generally subject to taxation on distributed income and capital gains. In the case of investment funds, assessable income is levied at the taxpayer's marginal tax rate; pension fund earnings are taxed concessional (see section 2.8).

2.7.2 Characteristics of fiduciary finance institutions

As shown in table 2.8, the consolidated value of Australia's fiduciary finance industry is split across a number of institutions, with pension funds accounting for the majority of the industry's assets.

Table 2.8: Consolidated industry assets by sponsoring institution

As shown in table 2.9 Australian investment managers source approximately 96 per cent of their assets from domestic sources. From a sectoral perspective, pension funds and life insurance institutions invested the majority of their financial assets (\$535 billion or 56 per cent) through investment managers, with \$428 billion (or 44 per cent) invested directly into financial markets.

Table 2.9: Sources of funding for Australian investment managers

2.7.3 Legal structures and funding mechanisms

Consistent with trends observed offshore, the overwhelming majority of Australian fiduciary products are structured as open-ended, unlisted unit trusts (Mees, Wehner and Hanrahan, 2005). The financial fiduciary acts as the “market maker” for the product and cash flows are continually accepted from customers (generally using a daily pricing facility). In the interests of equity for all investors in the fund, transaction spreads (also known as “buy/sell differentials”) – which reflect the estimated costs of transacting in underlying financial markets to re-weight the portfolio – are deducted from the cash flows invested or redeemed by the fiduciary.⁹

In the open-ended structure, the portfolio is subject to changes occurring from both the net cash flows from investors, and the performance of the asset portfolio itself. Under a closed-end fund structure, investors transact their securities on the ASX at prevailing market prices which can often deviate substantially from NAV according to general market sentiment, perceptions of the fund manager, and/or portfolio holdings. Additionally, like any other security traded in the secondary markets, the fund’s bid/ask spread will vary according to liquidity and market depth. From a portfolio management perspective, however, closed-end structures are favoured because they create a “captive portfolio”: the fund manager is able to concentrate on the investment selections without being concerned with the effects associated with funds flows.¹⁰

⁹ Although redemptions and applications are usually financed from liquidity, rather than by transactions in financial markets, transaction spreads are usually applied to client transactions which can enhance the returns of the fiduciary product for remaining investors (i.e. the spread is not retained by the financial fiduciary).

¹⁰ The primary disadvantage from a portfolio management perspective arises from the inability to control cash flows. If the portfolio receives large net cash inflow from investors, then the funds manager must invest these funds quickly to minimise “cash drag” which arises where portfolios are not invested in underlying securities (and often earn lower returns from liquid investments). Conversely, the funds manager may be required to make sub-optimal decisions from an investment perspective to fund outflows. The existence of differential taxation for “ordinary income” and realised capital gains also magnifies the loss of control over post-tax economic returns which results from open-end structures.

Listed investment funds are the oldest form of collective managed investments in Australia and the listed funds market comprised 138 companies and trusts with a market value in excess of \$9 billion (or approximately 14 per cent of the total market capitalisation of the Australian stock market as at 31 January 2005 (Gold, 2006a). Traditionally, listed investment funds have been primarily conservative long-term investors which favour firms with a history of profitability, conservative financial structures and regular dividend payments. However, more recent offerings have been characterised by lucrative, long-term management contracts (Gold, 2006a).

Exchange-traded funds (ETFs) are a relatively recent product innovation which employs a hybrid funding model which combines the advantages of an exchange listing, with the ability to accept new funds flows from institutional investors without triggering transactions in the fund's portfolio which can have adverse effects in terms of transaction costs and market impact. Unlike conventional funds which exchange investors' cash for securities in the fund, ETFs can also use an *in specie* transaction facility to allow transfers of "baskets" of securities in exchange for securities in the ETF. The hybrid funding model is particularly suitable for index-tracking strategies; however, despite the popularity of these products offshore, their growth in the Australian market has been constrained by the availability of suitable indexes which are the underlying investment strategy for these products (Ali and Gold, 2001).

2.8 Types of pension funds

Because the bulk of fiduciary products are captured through the pension funds segment, this section provides more detail regarding the characteristics of funds which reside within this segment. Pension funds are designed to be long-term savings vehicles and they qualify for concessional rates of taxation on their investment earnings and realised capital gains (currently 15 per cent). Different tax rates have previously applied to the different components of contributions made by the beneficiary to the fund, however,

since 1992, 15 per cent of beneficiary contributions have also been taxed (see appendix 1). Prior to the recent introduction of policy changes (which dramatically simplified the taxation of superannuation funds and benefit payments) pension funds and their beneficiaries were effectively subject to a regime of “triple taxation” (i.e. contributions, earnings and retirement benefits).

In Australia, as in offshore jurisdictions, trustees of complying funds are prohibited from making payments to the beneficiaries for other than for *bona fide* circumstances such as the member reaching statutory the retirement age, or transferring of assets to other complying funds. By contrast, investment products which are not subject to these regulations are not taxed at the product level; instead, their returns are distributed to the beneficiaries and tax is payable at their marginal tax rates depending on the components of distributed income (income versus realised capital gains). Pension fund trustees are responsible for formulating and implementing investment strategies appropriate for the beneficiaries, and their operations, including their investment strategies, are subject to prudential oversight under the *Superannuation Industry (Supervision) Act 1993* (SIS Act) and its accompanying regulations.

Table 2.10 summarises details of the main types of pension funds and the remainder of this section briefly explains the trends experienced within the pension fund segment.

Table 2.10: Types of pension funds by asset size and membership

2.8.1 Retail

Retail funds are the largest category of pension funds (and therefore the industry overall), representing nearly a third of total pension funds segment's assets, and over half of its members. These funds are also known as "public offer" funds, because they are able to accept placements from individuals. According to industry data compiled by Standard & Poor's, the retail market segment is highly concentrated (as shown in table 2.11) with the 10 largest players capturing approximately 80 per cent of assets.

Table 2.11: Retail pension funds

2.8.2 Private

Private pension funds are retirement and pension vehicles which are established by individuals who manage their retirement assets and financial affairs directly. Private pension funds are known by various labels including "self-managed superannuation funds" (SMSF), "small", and "do-it-yourself" (DIY). These labels understate both the size and sophistication of these funds. As shown in table 2.10 above, private pension funds account for over 23 per cent of retirement system assets, despite covering approximately 2 per cent of members, indicating significantly higher average balances than other categories.

These funds have achieved very strong growth over the past three years, as individuals have become significantly more active in the management of their retirement assets. This

growth has also coincided with a protracted period of poor investment returns and negative investor perceptions regarding the value proposition of public offer pension products. More recently, legislation enacted to provide beneficiary choice in occupational superannuation, is expected to further boost the popularity of these funds (Clare, 2005).

These structures provide investors significantly more control over taxation and investment selections than public offer and pooled funds. The beneficiaries of these funds are also trustees, and are therefore legally responsible for fulfilling a range of administrative, accounting and taxation obligations to ensure that the fund remains eligible for concessional tax treatment. It is common practice for the trustees of private pension funds to engage service providers to outsource preparation and amendments to the trust deed, preparation of financial statements and tax returns, benefit and compliance reporting, and investment strategy design. Although the available data is sparse, the overwhelming majority of private pension funds are invested directly into financial markets (with a higher proportional allocation to domestic equities and trusts), cash, term deposits, real estate, and have low exposure to overseas assets compared to the other pension funds (Roberts, 2002).

2.8.3 Corporate

Also known as “in-house” funds, corporate pension funds are established and managed by employers who sponsor retirement benefits for their workforces. The administration and investment functions of these funds are undertaken internally or outsourced to specialist service providers. Often, the fund trustee may be a subsidiary established by the employer which is comprised of directors of the employer and staff representatives, or an external trustee company is used to perform the function.

In the light of the increasing regulatory burdens, many corporate pension funds have been partially or fully outsourced: the former achieved by transferring employees' assets to fiduciary products; the latter, by employing specialist service providers to deliver administration and investment functions (including implemented consulting schemes). This trend is evidenced in the APRA (2006) data which show a 24 per cent decline in the membership of corporate pension funds in the past decade.

2.8.4 Public sector

Public sector funds are established specifically for public servants and employees of statutory authorities. Public sector funds are quite different from other pension funds which are required to have sufficient assets to match beneficiary liabilities (i.e. are fully-funded). Several large public sector funds are unfunded or substantially under-funded: this situation is unique to public sector funds, because governments are able to use their taxing powers to fund beneficiary entitlements as they fall due, and therefore, they are not required to adopt a funded (solvent) position. At both the Commonwealth and State levels, however, governments have adopted "fiscally responsible" financial management principles: for example, the Australian government announced in 2003 that it would establish a "Future Fund" to meet the unfunded pension liabilities of its employees to achieve a fully-funded position (Australian Treasury, 2002). The relative importance of public sector funds has declined over the past decade as their membership has remained largely static while the pension segment overall has experienced significant growth.

2.8.5 Industry

Industry funds were established for employers, usually within a specific industry or range of industries in the mid-1980s by employer associations and trade unions as part of the process of negotiating industrial awards and collective bargaining agreements. In contrast to public-offer funds, most industry funds are managed on a not-for-profit basis to provide the lowest possible operating costs (in terms of both fund administration and investment options). Industry funds primarily outsource investment functions to

institutional funds managers and administration/ client services to specialist providers. Industry funds have used their buying power to negotiate competitive costs, and evolved as integrated funds complexes which incorporate member firms offering administrative and investment services. In recent years, with the introduction of investment choice, most industry funds have become “public-offer” funds. These funds have adopted mass media advertising strategies, business development managers and dedicated financial planners to offer comprehensive services to members and to capture market share which would otherwise be lost to commercial trustees.

2.9 Types of investment strategies

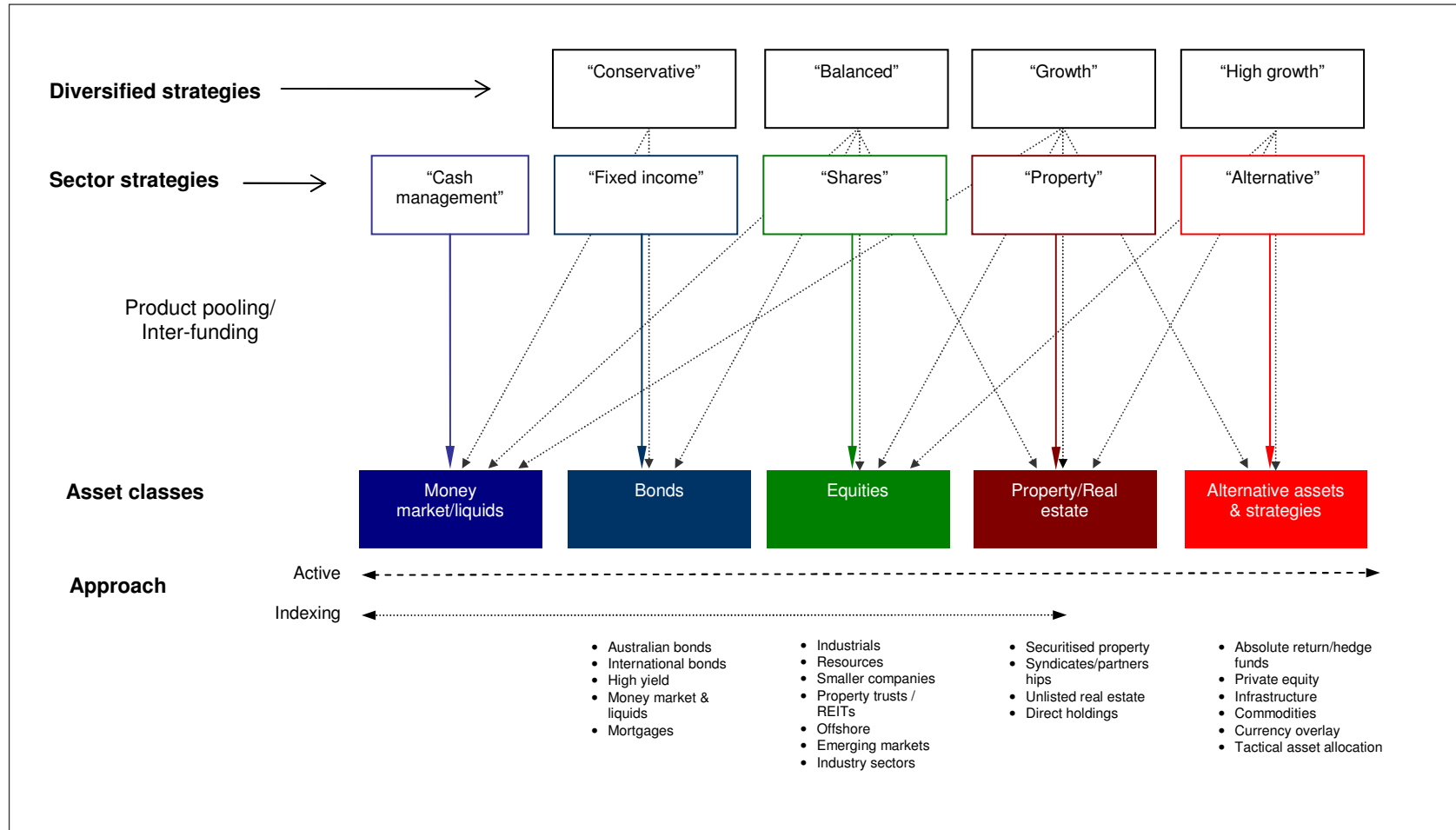
There are marked differences between the types of investment strategies offered in Australia and other markets. These differences are a function of culture, geography, regulation, and the depth of financial markets. In Australia, most investment strategies are “actively-managed” (where funds managers are responsible for making “bets” in regard to the relative investment merits of markets and individual securities, rather mimicking market averages) and there has been a slower uptake of so-called “passive” index-tracking strategies compared to the United States (Gallagher, 2002). The preference for active management in Australia has been attributed to the observation that domestic funds managers have generally outperformed the broader market averages over the long term.

Competitive pressures in the funds markets have seen a convergence of portfolios and thus performance outcomes. In the three financial years ended 30 June 2003, many fund managers failed to avoid the negative returns experienced by broad markets – and in many cases, significantly underperformed market indexes. These circumstances encouraged advisers and investors to look for cheaper methods of gaining market exposure, and for investment strategies not significantly correlated with markets, which could provide capital protection, or more targeted exposure.

It has also been increasingly common for advisers to suggest a “split-funding” model of investing: the core portfolio assets are indexed and the balance is distributed to active managers. This model provides the important benefit of reducing the “business” risks associated with idiosyncratic risks of fund managers and strategies, and it can provide additional diversification in clients’ portfolios. Funds managers have also sought to reduce their business risks and broaden their revenue base by offer more strategies and fund-of-fund products which are attuned to these changing preferences. As shown in figure 2.7 below, the range of available fiduciary products and investment strategies reflects a risk/return continuum derived from “mixing and matching” the underlying asset classes and investment approaches (i.e. active and indexation). The main product groupings are diversified, sector-specific (also known as “focused”) and alternative strategies. In modern fund families/complexes (and shown in this figure) it is common for underlying asset class “pools” to be established with all products gaining their investment exposures indirectly via inter-funding (and cross-investments).

The packaging of investment strategies within clearly demarcated product categories is necessary to ensure competitive positioning within industry performance surveys and the competitive tendering of fund managers; both of which are typically oversights by industry “gatekeepers” (asset consultants and research houses). The diversity of labels creates an issue for funds managers, sales intermediaries, investors and regulators because of the potential for misunderstandings, misrepresentation and confusion. Over the past decade, funds managers have sought to rationalise their fund offerings to reduce the number of funds available, remove small or inefficient products, and simplify their product lines (Pricewaterhouse Coopers, 2006). Over this period, a trend of “un-bundling” investment portfolios has emerged: pension funds have increasingly created diversified investment strategies by mixing sector-specific fiduciary products offered by fund managers (RBA, 2003). These trends have also been motivated by fee considerations, and have increased the importance of gatekeepers in this segment.

Figure 2.7: The risk-return continuum of fiduciary products



2.9.1 Diversified strategies

Diversified strategies are invested across a number of financial markets and asset types (also known as “asset classes”) and are known by varying nomenclature including “balanced”, “growth”, “split”, “asset allocation” or “multi-asset”. These funds are managed within stated exposure ranges, and normally the funds manager maintains a neutral (or “strategic benchmark”) position in the respective asset classes over the long term. Some funds managers do not actively manage the allocation between asset classes. Instead, they periodically re-balance the investment portfolio to its benchmark asset mix weightings. Others manage the choice between asset classes actively, taking portfolio bets to over or under weight exposures to asset classes, and choosing between liquid and risky assets (known as tactical asset allocation).

Growth-oriented diversified funds are considered as the offering the highest risk/return trade-off and as their name suggests, invest primarily in assets which are expected to provide the majority of their return from capital appreciation. Balanced strategies, as their name suggests, typically invest in a mixture of growth and defensive assets. The objective of these funds is to deliver consistent growth from equity assets with the stability engendered by income-producing securities, whilst offering lower variability of returns than strategies purely exposed to growth assets. Defensive or conservative diversified funds invest the majority of the portfolio in income-producing securities with a smaller proportion in equity assets. The objective of these funds is to provide low variability of returns with modest growth, and it is common that a return objective will be linked to the consumer price index (e.g. CPI plus 3 per cent per annum over the long term).

2.9.2 Sector strategies

Sector funds specialise within asset classes and include industry-specific shares, property securities, bonds (domestic and offshore), money market and liquids, private equity and venture capital. Because sector strategies are focused upon a single asset class, their investment policies are usually structured to ensure that the fund manager remains fully invested in the asset class chosen and specific restriction can be imposed on the allowable investments to 5 per cent of total assets. Unlike diversified strategies, therefore, the fund manager is usually discouraged from engaging in “market timing”. As a further control measure, the portfolio returns of most specialised funds are monitored closely relative to the performance of relevant financial market indexes (performance benchmarks). For example, a property securities fund will generally only be authorised to invest in listed property securities (REITs) with a small proportion the portfolio invested in money market assets for liquidity management purposes.

2.9.3 Fund of funds

These strategies provide an investment strategy which is based on a specified risk profile. The product sponsor (funds manager, investment adviser or asset consultant) establishes the risk parameters and investment mix of the portfolio, and then chooses several underlying funds managers. The rationale of these strategies is that value is added via funds manager selection and the mixing of managers provides additional diversification. These products have become particularly important to traditional financial institutions (e.g. banks and insurers) which have substantial customer “catchments” from their traditional business lines and have sought to expand into the lucrative investment business. For these firms, platform products provide the means of capturing maximum chargeable FUM. Also, as a by-product, the fiduciary may derive management fees as the investment manager of "house branded" funds. It is therefore common for fund-of-funds to include the fund manager/product sponsor as the “house” manager, with the investment menu populated by other “branded” managers.

2.9.4 Absolute return strategies

Also known as “hedge funds”, these investment strategies are differentiated from conventional strategies because they are designed to provide returns which are not highly correlated with traditional strategies and markets. Some apply a more stringent objective of generating positive returns irrespective of market conditions. Importantly, whilst these strategies invest in the same asset classes as conventional funds, they are able to employ portfolio management techniques (including leverage and short-selling) which are usually prohibited by the investment policies of the conventional strategies.

The appraisal of absolute return strategies is highly problematic, however: analysis of the investment proposition offered by these products has revealed that they have been unable to outperform the broad equity markets, especially given the high fees charged to investors and the complexity inherent of popular fund-of-hedge funds which dominate the sector (Ali and Gold, 2004a, 2004b; Ali, Stapledon & Gold, 2003).

2.9.5 Screened and themed strategies

Socially-responsible investment strategies and those which target “corporate sustainability” and other non-financial criteria have generated significant interest. From a funds management perspective, these products provide and a profitable opportunity to satisfy latent demand from investors (especially pension funds trustees). Any appraisal of these “dual objective” strategies is highly problematic given the divergent claims and investment approaches which are used.

Applied scholarship (Ali and Gold, 2002; Haigh and Hazleton, 2004) has noted however that many SRI funds were, in fact, “closet” index funds which held similar portfolios as broad market funds (which has called their thematic credentials into question) while charging significantly higher fees than mainstream products.

2.10 Destination of industry assets

The fiduciary finance industry offers a multitude of products, investment styles and funding structures. However, in terms of ascertaining aggregate investor demand for financial markets, *where* these funds are *invested* is an important issue. According to the ABS (2006a) pension funds held \$474.0 billion in shares and other equity (56 per cent of their financial assets), of which \$343.1 billion was in domestic firms and \$130.9 billion was in non-resident companies. Pension funds held \$154.1 billion of net life office reserves (18 per cent of their financial assets); \$75.5 billion in bonds (9 per cent of their financial assets) \$45.9 billion in Australian bonds and \$29.6 billion in offshore bonds.

Table 2.12 below provides a “look through” analysis of the destination of assets for the fiduciary finance industry overall, and for pension funds as a discrete segment.

Table 2.12: The destinations of fiduciary finance assets

Consistent with the long-term nature of their investment objectives and growth preferences, the bulk of the industry’s assets are held in domestic and international shares, unit trusts and real estate assets. There are discernable differences between the assets of different fund segments: pension funds are expected to have greater diversification than investment funds which may follow a specialised strategy (e.g. cash management trusts).

CHAPTER 3 – WHAT IS *INVESTMENT*?

3.1 Introduction

Perhaps the most significant normative assumption which has accompanied the development of financial theory is the implicit definition of “investment” itself. Given that the value of securities is set in financial markets, it remains an essential task of both scholars and industry practitioners to validate *investing*, and therefore, to legitimise the smooth and efficient functioning of financial markets. Attempts have been made to define investment on putative grounds by differentiating it from “speculation”: the latter generally suggested as being less meritorious than the former. The development of financial theory has been self-perpetuating for both scholars and the investment industry: the “science of investing” has advanced in a lock-step evidenced by the proliferation of index funds and asset allocation strategies since the early 1970s which were developed directly from academic research.

The previous chapter detailed the institutional forces governing the investment *business* which can create disparities between applied portfolio management practices and scholarly descriptions of the discipline. The fiduciary duties associated with investment products, introduce moral obligations which are extraneous to the assumptions of orthodox finance theory. The purpose of this chapter is to consider both the nature of investing and the characteristics of financial markets, in order to posit a universal definition of investment, an economic activity which has a single dimension: generating wealth from portfolios of financial securities. This chapter examines the theoretical notions and assumptions which frame the activities of financial fiduciaries and fund managers, and clarifies the legal foundations of fiduciary finance. It also espouses a universal definition of investment within the context of contemporary financial markets and the observed imperatives of the various financial fiduciaries.

3.2 Assumptions, notions and pre-conceptions

3.2.1 Perceptions of investment versus industry practices

Contemporary descriptions of investment in the academic literature are typically concerned with notions of fundamental value and assumptions regarding investor behaviour. Financial fiduciaries undertake the generic investment functions of portfolio management (security selections and cash management), security custody and administration, monitoring and client servicing. Aside from these generic functions, the principal point of differentiation from an investment perspective between financial fiduciaries, are the various approaches used to allocate funds between markets and to select securities within those markets. In providing their services, financial fiduciaries must formulate and consequently adhere to well-defined investment objectives and portfolio management guidelines which form the explicit legal “commercial bargain” between them and their clients.

3.2.1.1 Judgement in investing approaches

The fiduciary finance universe can be characterised by two apparently mutually exclusive investment approaches – “passive” or “active” – although there are many examples of hybrid portfolio strategies which incorporate both approaches. The *economic rationale* of the so-called “passive” investment approach relies on a fundamental belief that financial markets are informationally-efficient: that is, financial markets correctly value securities because virtually all known (i.e. public) information is impounded in their prices. Accordingly, it is considered futile to attempt to second-guess security valuations, and, *a priori*, the optimal long-term portfolio is one which follows the “market” but incurs minimal costs to operate the portfolio.

A substantial body of literature supports this contention from two separate perspectives (discussed in chapter 6). First, professional funds managers do not reliably outperform the market on a risk-adjusted basis, and second, security prices usually respond rapidly

after information is disclosed to the market by issuer firms, stock broking analysts and investment bankers (on the “sell-side”), fund managers and institutional investors (on the “buy-side”), and other influential opinion-makers including market operators, media commentators and regulators.

Conversely, the *economic rationale* of an active approach is that the incremental returns which are generated from a “judgemental” strategy (which relies upon deriving price-sensitive information from analysis and making conscious portfolio decisions) outweigh the costs which are incurred. The existence of anomalies in the efficient markets literature and anecdotal evidence in the scholarly and practitioner literature, both attest to the ability of active fund managers to persistently outperform markets over extended periods. For example, Seigel, Kroner and Clifford (2001) have documented a large number of long-term “winners” amongst the performances of institutional fund managers, mutual funds, endowments and hedge funds. Overall, the available empirical research has not validated universally either the passive or active investing approaches, although the general consensus is that markets are “reasonably efficient” which lends support to the efficacy of passive investing on economic grounds.

The *investment proposition* of a so-called “passive” approach is to create a portfolio which mimics the composition and performance of published financial markets indexes. These indexes are designed to provide a representative measure of market returns, and passive strategies aim to replicate the return of the “market” less fees and taxes (which are not levied on indexes). The “passive” nomenclature, which has evolved from colloquial usage, is somewhat misleading: these strategies are expected to exhibit lower portfolio turnover than their actively-managed counterparts, because they minimise portfolio changes, and significant valuation judgements are not required with regard to the securities selected for the portfolio or their respective weightings (these are made in the market and compiled by the index publisher).

Unlike a conventional “buy-and-hold” approach, passive portfolios can experience frequent transaction turnover because indexes themselves are actively-managed instruments with their portfolio selections directed by changes to composition of the underlying index (or “market”) basket. Rather than being “passive”, these strategies are best described as “index trackers”, because their portfolio selections depend primarily upon the index tracked (and its nominated “basket” of index securities) and the flexibility afforded to the fiduciary in terms of deviations from the index proportions. It is common for “tracking error” constraints to be incorporated within index-tracking products which is designed to ensure that their returns remain within a close tolerance of the market index (for example, on average, the variability of the differential returns between the index and the portfolio is expected to be less than 1 per cent per annum). The levels of portfolio turnover for index-tracking strategies are inextricably linked to index constituent turnover (which as shown in section 6.4.2, can be substantial).

In practice, the selection of a “good” index for passive investment purposes is itself a reasoned and subjective judgement, given the multitude of indexes available and their differing financial characteristics. Enderle, Pope and Siegel (2003) have provided a thorough discussion of relevant criteria and trade-offs involved in the construction and selection of different indexes. After the decision regarding the selection of the index to be tracked is made, the primary portfolio decision for a financial fiduciary, therefore, is to determine whether *all* the constituents of the index basket (known as “full replication”) or a *representative* subset (known as an “optimised sample”) is to be held instead.

The decision to hold a subset, rather than a full replica of the constituents of the market index, therefore, is motivated by the objective of reducing the number of securities held, and resultant transactions costs. Often, the smallest index constituents will have the highest transaction costs but will have the smallest impact on the index return overall.

Different “sampling” techniques are therefore employed to construct a portfolio which contains substantially fewer securities than the index tracked with but with commensurate performance characteristics (subject to conformance with any tracking error constraints).

After the index has been selected, the financial fiduciary’s principal on-going function is concerned with replicating the performance of that index: they purchase or sell securities in the portfolio according to the cash flows received from their clients (funds flows) whilst maintaining correct portfolio “quotas” for individual securities, and “re-balancing” the portfolio to ensure that any changes to the index basket (as announced by the index publisher) are reflected in the portfolio’s holdings.

The extent of re-balancing depends on the index construction policy (periodic and *ad hoc* changes made by the index publisher) and *ad hoc* market events (e.g. corporate actions and valuation changes). Index reconstitutions may therefore require the financial fiduciary to dispose securities which have been excluded from the index and to transfer the proceeds to buy securities which have been included in the index. The financial fiduciary may also be required to re-balance the portfolio if the index publisher increases or decreases the weighting of the index constituents according to corporate actions and the “free float” adjustment process (see section 3.2.7).

From an *investment* perspective, index trackers are unconcerned with the economic merit of securities held, acquired or disposed within their clients’ portfolios. The fees charged are very low both in absolute terms, and relative to active strategies, reflecting the non-judgemental and mechanistic operation of the portfolio.¹¹ In a direct contrast to an index-tracking approach, the *investment proposition* of an “active” investment approach concerns the investment fiduciary forming judgements and making decisions regarding

¹¹ For example, for institutional investors seeking an Australian equities exposure, an index-tracking product would have an annual management fee of 5-10 basis points while for an active strategy, this would usually be at least 50 basis points.

allocations of portfolio funds between asset classes (for example, the allocation between cash and equities) and the selection of individual securities within asset classes.¹² An active strategy requires continuously analyses and forecasts to identify discrepancies between appraised (or “fair”) value and market value, and transacts upon clients’ portfolios to profit from any subsequent convergence to fair value: this emphasis (on valuation judgements) requires the financial fiduciary to develop proprietary information signals. Typically this approach entails a significant investment in research staff and technology infrastructure, and these costs necessitate fee levels which are significantly higher than an index-tracking approach. In contrast to an index-tracking approach which has a highly constrained portfolio composition, the active investment proposition suggests significant flexibility portfolio positions with respect to the “bets” taken on individual securities versus the broad market, and holding cash buffers according to judgements regarding perceived value.

3.2.1.2 Overrides and limitations on judgement in investment

Whilst an index-tracking strategy obviates overt judgements (but actually involves implicit judgements such as the choice of index and replication technique), the *practice* of active investment also differs significantly from the financial theory and professional parlance. There is a range of interrelated forces which can mitigate against fund managers undertaking significant portfolio judgements. First, fiduciary products provide generic investment solutions and the ultimate beneficiaries are not consulted individually before portfolio transactions occur. The placement of a client’s funds into a fiduciary product typically results from a separate financial intermediation which is provided by a financial adviser or sales intermediary within the tertiary markets of fiduciary finance. These product placements are considered a sales transaction where they generate

¹² The prevailing financial theory suggests that fund managers create (or should create) “optimal risky” portfolios which apportion funds between risky and risk-free assets in order to provide portfolios with the highest rate of return. This characterisation found in contemporary investment texts and the theoretical literature, can be described more formally as the “theory of active management” which coalesces within “informationally-efficient” markets (e.g. see chapter 27 of Bodie, Kane and Marcus, 2005).

commissions for the intermediary; however, under a “fee-for-service” advisory arrangement, placements of funds usually do not result in direct commissions being earned by the intermediary. The financial adviser typically devises a strategic plan for the investor which includes allocations to various fiduciary products which are drawn from an “approved list” of securities and monitors their performance. In this context, it is the financial adviser (rather than the fund manager) which must consider any mismatch existing between the individual circumstances and financial objectives of their clients, and the investment strategy and service features offered by the fiduciary product. It is therefore incumbent upon the financial fiduciary (fund manager) to ensure that the fiduciary product operates according to its stated objectives and investment strategy, regardless of the individual preferences and taxation position of the beneficiaries, and market conditions.¹³

Second, financial fiduciaries must comply with investment constraints imposed by the applicable legislation which depends on the type of fiduciary product involved.¹⁴ For example, under Australian superannuation regulations, fund trustees must devise an “appropriate” investment policy which considers the liquidity, risks, time horizon and growth needs of the beneficiaries (APRA, 1999). These regulations do not prescribe what constitutes an “appropriate” investment policy, and substantial practical restrictions are imposed upon fiduciaries which violate several assumptions of classical financial theory. For example, there is a blanket prohibition on borrowing to create enlarged (or “geared”)

¹³ Typically, financial fiduciaries typically manage portfolios on a total return basis with an objective of exceeding a market index or reference benchmark. In meeting these objectives, therefore, the taxation position of individual beneficiaries typically is not taken into consideration. There have been increasing calls for fund managers to manage products not according to investment merit, but according to the post-tax (or economic) returns. The financial fiduciary may therefore identify a significant perceived “over-valuation”, however, it may not be economically optimal to sell the holding if this disposal crystallises large capital gains tax liabilities which are assessable in the hands of the ultimate beneficiaries. Arnott, Berkin and Ye (2000) found that most funds shed value due to the consequences of taxes and active fees while Downen and Mann (2004) found that taxation was a greater impost than fund operating expenses for a large sample of no-load mutual funds.

¹⁴ Hanrahan (1998) and Mees, Wehner and Hanrahan (2005) provide details of the regulatory regimes applicable to pension and investment products in Australia.

economic portfolio exposure. Under these regulations, specific monitoring and onerous disclosure requirements can also be triggered which may discourage trustees from using derivatives extensively.¹⁵

Third, as noted in the preceding chapter, the fiduciary must provide sufficient detail in the PDS which enables its clients/beneficiaries to make an informed decision about their investment. The most pertinent information is the investment policy: *where* and *how* the fiduciary product's investment portfolio will be normally invested. In relation to the latter, it is common for fund managers to provide only bare descriptive or qualitative information which may be difficult to quantify or verify. As shown in figure 3.1, however, a principal statement depicting the long term "benchmark" position and exposure ranges for different asset classes is typically included. In the context of pension funds, trustees are encouraged to use a formal strategic benchmark and exposure ranges (APRA, 1999: 27-30).

In practice, investment policies are typically constructed according to generic risk and return preferences using historical financial market performance characteristics, and the portfolio structures employed by competing fiduciary products, to ensure that they will remain competitive with peers. It is the financial fiduciary's legal obligation to ensure that the portfolio is managed in compliance within those investment ranges: this means that in practice, the trustee/fund manager is permitted to make portfolio judgements subject to specific contractual constraints, rather than a completely unfettered investment mandate.

¹⁵ These restrictions are intended to protect the primacy of the beneficiaries' claim to the assets ahead of lenders, and the general investment risks associated with gearing and the use of derivatives. Trustees are required to issue risk management statements (RMS) which explain how derivatives are used in portfolios. If the effective economic exposure of derivatives exceeds 5 per cent of total assets, disclosure must be made to beneficiaries (APRA, 1998; APRA, 1997).

Figure 3.1: Sample statement of investment policy

Asset classes	Indicative investment exposures		
	Minimum %	Benchmark %	Maximum %
Australian shares	25	40	55
International	10	25	40
Property	5	10	15
Bonds	10	25	45
Cash & liquids	0	5	20

Fourth, the fiduciary finance industry is highly-competitive and these forces naturally encourage homogeneity in the products offered (in terms of their features and their investment strategies). Consequently, fiduciary products are grouped within generic product categories for performance evaluation purposes (“product surveys” or “league tables”). These sources of information are important for the beneficiaries and intermediaries alike, because they provide an objective basis for comparing the performance outcomes from the strategies available. Within the “retail” industry, these data are used extensively for sales and marketing purposes. In the institutional (or pension fund) arena, performance surveys compiled by industry gatekeepers are used for monitoring actions, and enable trustees to demonstrate their compliance with government regulations which require regular portfolio performance monitoring vis-à-vis “commensurate” strategies (APRA, 1999: 39-46).

Fifth, given a large scale of assets under management, it is impractical for financial fiduciaries to engage in significant portfolio judgements (even where permitted within allowable exposure constraints) because the perceived informational efficiency of financial markets should create a dearth of profitable opportunities. Moreover, exercising significant portfolio judgements can create direct and indirect transactions costs which

must be borne by clients (and result in lower returns versus the market indexes and peer portfolios).¹⁶ There are also significant business risks associated with making incremental changes to portfolios; notably, the opportunity costs associated with trailing the broad market returns if these portfolio judgements do not come to fruition within the relevant performance-reporting horizon. To reduce this underperformance risk potential, therefore, it is common that the fiduciary product's investment policy requires the fund manager to remain "fully invested" in the relevant market instruments, thereby ensuring that a continuous position within financial markets is adopted.¹⁷

Sixth, in more sophisticated fiduciary finance markets, fund managers may specialise in particular "investment styles" which emphasise specific valuation methodologies (e.g. "value" or "growth") or target subsets of the broader market according to financial criteria such as market capitalisation (e.g. "small cap" or "large cap").¹⁸ Each investment style has different connotations in terms of the types of securities held, and propensity to transact in the portfolio. Bernstein (1995) has noted that investing style strategies provide disaggregation of markets, with fund managers attempting to identify and exploit anomalies and has attributed the phenomenon of style-investing and its proliferation '...to the advent of the pension fund consultant' (p. 3).

As discussed in chapter 7, industry gatekeepers continually monitor the portfolio positions to ensure that portfolios are invested "true to label" (i.e. according to their stated investment specialisation). Therefore, to the extent that the profitable opportunities reside outside of the "allowable" investment universes, investment styles effectively override

¹⁶ Direct transaction costs are brokerage and taxes on capital gains and trading profits. In addition, there are identifiable "market impact" costs which result from a fund manager's visibility and other market participants' awareness of its intentions.

¹⁷ For example, within "asset sector" funds, it is particularly common the portfolio exposure ranges to provide a maximum allocation to cash and liquids (i.e. non-market assets) of 5%: this significantly restricts the scope for "market timing" activities.

¹⁸ For a discussion of investment style analysis and its implications for portfolio management see Sharpe 1992; Bernstein, 1995; Davis, 2001; Levy and Post, 2005.

portfolio selections. Further, it has become more common for customised “style” indexes to be used for relative performance measurement, and industry gatekeepers also periodically analyse the composition of investment portfolio holdings versus these benchmarks and their constituents (Levy and Post, 2005: 780-8).

Finally, as discussed in the previous chapter, although investors would expect that portfolios would be constructed to reflect only the “best investment ideas”, remuneration under the industry business model depends upon the value of client assets and net funds flows (i.e. product growth). Accordingly, financial fiduciaries are principally concerned with maintaining competitive performance relative to other service providers within the industry’s marketplace, and there is anecdotal and empirical evidence that market share is awarded to those who deliver return consistency and low fees, rather than high performance (e.g. Chevalier and Ellison, 1997; Sirri and Tufano, 1998).

3.2.2 Economic fundamentalism: intrinsic value as the basis of investment

As the key instrument of orthodox economics, markets are expected to provide the optimal mechanism for allocating scarce resources – in the investment application, financial securities – amongst rational, wealth maximising, and risk-averse investors. Scholarly attempts to define investment have relied upon the important premise that the price discovery function of financial markets operates effectively to ensure that market prices normally equate with “fair” economic value. For financial markets to be considered arbiters of economic value and therefore a venue for “investment” (rather than speculative transactions or randomness), it has remained incumbent upon scholars and practitioners to develop and validate a “fundamentalist” construction of investment.

The early economists (such as Kaldor, Keynes, Hicks and Marschak) who developed theories of money considered the role of risk and the capital allocation within credit markets, viewed financial markets derisively as speculative venues where asset prices

were determined primarily by competing expectations about capital gains, and the fancies of the participants and broader public. For example, Keynes (1936) applied his famous “beauty contest” analogy to financial markets suggesting that security prices were likely to be dependent upon the tastes of observers rather than orthodox notions of fundamental economic value. Not unsurprisingly, focused investment scholarship has sought to validate the functioning of financial markets (and thus, security valuation) according to economic norms, with earnest attempts to prescribe “investment value” as a rational basis upon which participants could transact in financial markets.

The principal literature asserting a claim of legitimacy for “investment” emerged in the aftermath of the stock market Crash of 1928 (Graham and Dodd, 1934; Williams, 1938). These authors proposed an income “capitalisation” approach: Graham and Dodd (1934) argued that investment was concerned with estimating a security’s *intrinsic* value stating: ‘[w]e are concerned however, with common stock *investment*, which we shall define provisionally as purchases based upon analysis of value and controlled by definite standards of safety of principal’ (p. 9). Williams (1938) also incorporated orthodox economic principles asserting that *investment* value was related to the income a security generated:

...we shall see fit to define Investment Value, therefore, as the present worth of the future dividends in the case of a stock, or of the future coupons in the case of a bond. The definition for investment value which we have chosen is in harmony with the time-honored method of economic theory, which always begins its investigations by asking, “What would men do if they were perfectly rational and self-seeking?” (p. 6).

The assumption of economic orthodoxy incorporated in these scholarly works – namely, that market prices stabilise at “fair value” over time – has been criticised more recently. For example, Soros (1987) has argued that markets have no tendency to natural equilibrium: conversely, he contends that the “reflexive” actions and overreactions of market participants’ ensure that prices continually diverge from equilibrium.

Rather than being a deterministic mechanism which confirms true long-term equilibrium between supply and demand, therefore, market prices may more realistically, represent what Williams (1938) described as a “*supposed state of equilibrium*” (p. 17).

3.2.3 Differentiating investment from speculation and gambling

To casual observers, financial markets transactions resemble institutionalised gambling, especially during periods of episodic volatility. Gabaldon (2001) has provided a detailed discussion of the practical distinctions existing between gambling, speculation and investment. Statman (2002) has noted similarities existing between lottery players and stock traders, in terms of the participants’ motivations and aspirations and the techniques used by the promoters of these activities.

The early investment scholarship also sought to clarify “investment” as the zenith of professional practice and “speculation” as its nadir. For example, Graham and Dodd (1934) devoted an entire chapter to this tenuous distinction:

...in the field of investment, experience since 1927 inspires questions both new and disturbing. Of these the least troublesome arise from the *misuse of the term “investment” to cover the crassest and unrestrained speculation*. If that were the only cause of our investment difficulties, it could readily be cured by readopting the *old-time, reasonably clean-cut distinctions* between speculation and investment. But the real problem goes deeper than that of definition. It is bound up not with the scarcely less calamitous failure of investment itself, conducted in accordance with *time-honored rules* (p. 2, emphasis added).

The authors asserted that the market excesses of 1928-29 and subsequent calamities were due to the failure of practitioners to distinguish between investment and speculation (p. 50). Placing a significant emphasis on the requirement for diligent and thorough analysis, they opined that analysts involved in speculation were ‘...lacking in professional dignity’ (p. 25). Importantly, their definition of investment asserted that investing and speculation were mutually exclusive activities:

An investment operation is one which, upon thorough analysis, promises safety of principal and a satisfactory return. Operations not meeting these requirements are speculative (Graham and Dodd, 1934: 63).

This definition was supported by subjective measures of “soundness” (p. 11), assertions that value ‘...could be justified by the income’ (p. 12) and that ‘...intrinsic value that could be justified by the facts’ (p. 17). It is notable that the investing approach they espoused was ill-suited to conditions of market volatility which prevailed at that time, and have been experienced in subsequent market cycles, despite its moral tone and conservatism:

Yet under more normal conditions [the approach] should yield satisfactory average results, and, most important of all, it promotes a fundamentally conservative point of view, which should constitute a valuable *safeguard against speculative temptations* (Graham & Dodd 1934, p. 13, emphasis added).

Williams (1938) also thoughtfully considered the practical distinctions existing between investment and speculation:

Bull or bear a man may be, and still be an investor rather than a speculator, so long as he looks to dividends rather than to price changes to justify the cost of his stock...Successful speculation...requires no knowledge of intrinsic value as such, but only what people are going to *believe* intrinsic value to be (p. 33)...How to foretell changes in *opinion* is the heart of the problem of speculation, just as how to foretell changes in *dividends* is the heart of investment (p. 34).

He also recognised that the investment-speculation distinction was ambiguous, however: stating

...we shall define an investor as a buyer interested in dividends, or coupons and principal, and a speculator as a buyer interested in the resale price. Thus the usual buyer is a hybrid, being partly investor and partly speculator (p. 4).

These works have also reflected a desire to identify a “correct” way of investing which would deliver investors above-normal returns on their capital, reduce the volatility in security prices and the economic cycle in general, and also provide an intellectual justification explanation for the events which had transpired in financial markets. These scholars developed a definition of investment which relied upon the premise that a clear demarcation between investing and speculation actually existed. This distinction, however, has continued to elude modern scholars. Fridson (1993) for example, has compiled a range of 20 discordant and unrelated definitions which refer to both the motivations of participants and the nature of transaction activity. Significantly, on a

practical level, Ali, Stapledon and Gold (2003) have noted that a precise definition of speculation has not been provided by a court of law (p.78).

3.2.4 Fiduciary investment standards

Financial fiduciaries must manage beneficiaries' funds *prudently* according to standards encapsulated in the so-called "prudent investor" rule which is derived from common law and supplements the statutory duties of care, skill and diligence imposed upon fund sponsors, trustees and fund managers (Ali, Stapledon and Gold 2003: 78-94). The commercial significance of these prudential investment standards is that fiduciaries can be held personally liable for the economic consequences of *imprudent* decisions, whether these result in capital losses or the opportunity costs of foregone returns. The prudent investor rule was originally formulated in the late eighteenth century, and thus it can be observed that contemporary investing practices have operated from a practical foundation provided by jurisprudence, pre-dating financial theory, generally.

The importance of the prudent investor rule cannot be understated, and given that these legal precepts govern the operation of the contemporary fiduciary finance industry: the dearth of focused scholarship on the topic in Australia and offshore, therefore, is surprising. For example, Del Geurcio (1996) has noted that fiduciary institutions owned nearly half of the available US equity and that the operation of "prudent man" laws had resulted in significant differences in the composition of investment portfolios held by mutual funds and bank trust departments: the latter skewed toward stocks which were considered "prudent".

Until the formulation of the prudent investor rule was "modernised" the latter part of the twentieth century, financial fiduciaries were generally only permitted to invest in government-backed investments (without explicit permission provided in the trust deed). Corporate bonds, mortgages, and common stocks were generally deemed imprudent and

prohibited investments. This conservatism can be traced to the traditional rationale of trusts which favoured preservation of capital, and the financial disasters of trust investments in the eighteenth century, which ruined thousands of investors and prompted the British Government to enact the Bubble Act in 1719. Traditionally, family trusts were established to ensure that the grantor's estate was preserved on behalf of successive generations of beneficiaries. The trustee's priority, therefore, was to avoid risks to the trust's capital, with a secondary emphasis on generating current income. Family trusts were typically used to preserve capital (including purchasing power of principal), provide "satisfactory" current income, and more recently, as noted by Haskell (1990), minimising the economic burdens of taxes.

Typically, traditional trustees of estate trusts did not possess any specialist financial expertise (nor encountered any potential conflict between their own business and the returns of the beneficiaries) and the fiduciary duties owed under the prudent investor rule reflected this standard. By contrast, contemporary financial fiduciaries are investment specialists which employ a trust structure principally as a legal means of pooling beneficiaries' contributions to pursue a specific strategy. In contrast to traditional family trusts, the beneficiaries of a fiduciary product normally do not have any expectation of the security of their capital, nor is it common that distinctions are made between the capital and income interests of the different beneficiaries.¹⁹ It is also important to note that modern investment fiduciaries are typically specialised financial institutions. The obligations arising under the prudent investor rule are significantly more onerous than those for traditional trustees, especially those relating to the standard of care and diligence which require any conflicts of interest arising from their commercial operations and the interests of their beneficiaries to be mitigated.

¹⁹ One significant exception is the operation of "split trusts" which provided different return distributions for the holders of different classes of units issued by the trust. Usually, split trusts issued "growth" and "income" units, and returns were distributed in these two forms according to the holders.

Whilst it can be observed that fiduciary investment standards pre-dated financial theory, it is notable that they have been progressively “modernised” through several stages of legal reform which have largely codified principles of modern portfolio theory expounded since the 1950s. The earlier evolution of fiduciary investment standards, particularly in the US, was motivated by economic necessities rather than an innate preference for financial innovation *per se*. American fiduciaries were unable to import the British interpretation of the prudent rule because suitable government bonds did not exist, and the only available securities were provided by the burgeoning corporate bond market which fuelled the nation’s nascent enterprises (Langbein and Posner, 1976; Phillips, 1997; Ali, 2000; Ali, Stapledon and Gold, 2003).

The main shortcoming of traditional formulation of the prudent investor rule was its inability to provide objective standards for investment which resulted in inconsistencies and absurdities which were subject to legal challenges in the US in the late nineteenth and early twentieth centuries. The traditional formulation of the prudent investor rule required the prioritisation on risk avoidance and a “line-by-line” assessment of the respective merits of individual securities in isolation from the overall portfolio. Under this formulation, only “safe” investments exhibiting low risk to capital could be held – primarily fixed value government guaranteed bonds – however this approach was problematic because these securities would necessarily provide only low returns.

Early court cases therefore considered the trade-off between “high current income yield” and “safety of capital”: one court ruled that *all* common stocks were imprudent, although legislators circumvented this blanket prohibition by publishing lists of “approved investments” (although these generally precluded common stocks in favour of bonds). In another case, under the prevailing line-by-line assessment of portfolio choices, a fiduciary was sued for making a loss on a single investment, despite the fact that the portfolio was profitable overall. Further, several court cases examined what constituted “appropriate

diversification” and whether “young”, “growth companies”, convertible debentures and REITs, were considered “speculative” (Haskell, 1990: 94-100).

The important effect of the modernisation of the prudent investor rule was to endorse a “whole-of-portfolio” approach to investment selections; this emphasises a portfolio which is managed on an integrated basis to maximise returns overall. This removed the onus on fiduciaries to select only “safe” investments which would protect against loss of capital: an approach which had previously precluded potentially profitable opportunities from higher returning assets which could also offer an effective hedge against the deleterious effects on capital values from inflation. The modernisation of prudential investment standards also made it possible for financial fiduciaries to invest in “innovative” securities and financial instruments which would otherwise be considered risky or speculative in isolation – but could provide diversification and incremental returns – within a diversified portfolio.

The modernisation of the prudent investor rule endorsed the key modern portfolio theory principle: that a portfolio should be constructed to react differently to market and economic events, and that *total return* of the portfolio has primacy over the income yield or expected capital appreciation of individual securities. Whereas the traditional formulation of the prudent investor rule demanded active management, the consensus of available empirical evidence has reinforced that the majority of professional fund managers cannot beat the broad market reliably. Thus, the process of modernisation has effectively endorsed index-tracking schemes and reversed the previous onus placed upon financial fiduciaries to actively manage portfolios. In an early (and prescient) analysis of this issue, Langbein and Posner (1976) noted that fiduciaries would eventually be duty-

bound to “buy the market”:

We began with the question whether trust law would permit the trustee to implement the lessons of capital market research and adopt a buy-the-market strategy investment strategy. We think that we should conclude our review of the trust law by *warning fiduciaries that they cannot “play safe” by ignoring the new learning and continuing uncritically to put trust money into old-fashioned, managed portfolios*. When market funds have become available in a sufficient variety and their experience bears out their prospects, the courts one day may *conclude that it is imprudent* for trustees to fail to use such vehicles (p. 30) (emphasis added).

Although the continuing existence of market “inefficiencies” implies that an index-tracking portfolio may incorporate speculative securities (which may otherwise be judged as unsuitable and imprudent) and may consistently underperform the market index due to inclusion of liquid assets in the portfolio (Gallagher and Frino, 2001), these disadvantages must be considered as a trade-off given the economic benefits of indexation (i.e. low cost and broad diversification), in conjunction with continued scrutiny of index construction by financial fiduciaries.²⁰

Finally, whilst the modernised prudent investor rule has provided financial fiduciaries with significant flexibility in investment decision-making, it is premised on the acceptance of the theoretical canon of informationally-efficient markets. Paradoxically, financial fiduciaries are now less inclined to exercise valuation judgements which challenge market consensus, even in the presence of behaviour which casual observers may consider foolish and irrational. Shiller (2002) has noted that the accepted standards of fiduciary investment reside in conformance with conventional wisdom:

[T]he prudent person is someone who does what most of us think is sensible. Ultimately, it must refer to conventional wisdom...the prudent investor standard tells fiduciaries to follow conventional wisdom. The problem with the rule is, of course, that it makes fiduciaries interpreters of conventional wisdom rather than investment professionals. They cannot take action unless they can show that it is conventional...Fiduciary duties mean that investors are obliged to invest in a way that is generally regarded as prudent. Conforming with conventional wisdom – the truths that a person repeatedly hears – is a natural thing to do. As the prudent person standard has evolved, it has become clear that the rule does not mean the prudent man is pathologically risk averse or someone who lived 100 years ago – rather it refers to someone who does what most of us think is sensible – it must refer to conventional wisdom (p. 22).

²⁰ On the considerations that the fiduciary must take into account when using index-tracking strategies, refer to Ali, Stapledon and Gold (2003: 100-1).

3.2.5 Skill, success and chance

Despite the attempts by scholars to define investment as an intellectual endeavour and the qualitative/anecdotal descriptions of *how* it is conducted, it remains an activity – both in scholarly and industry circles – defined by *what* it produces: performance outcomes. The methods of quantitative performance evaluation *per se* therefore introduce potential for misspecification of investment; particularly, where popular/colloquial expectations exist that investors are skilled and solely-motivated by pricing discrepancies. Although performance outcomes are typically described using detailed statistical analyses, implicitly it is assumed that these result from conscious decision-making based on analytical *judgements*.

In reality, however, there is no method for differentiating between transactions and “non-transactions”. A transaction may arise where a decision is made to buy or sell a security, however performance outcomes can arise although no transactions have occurred: for example, a decision may have still have been taken to retain a security in the portfolio.

An implicit assumption is made, therefore, that portfolio transactions arise from analytical judgements as distinct from transactions motivated purely according to portfolio cash flows, and the investment “rules” specified by a fiduciary product/investment mandate. Since security prices and portfolio valuations are set by market forces and the price discovery actions of all market participants, it is plausible, therefore, that under this framework, portfolio valuation changes attributed as “skills” to those investors measured, may merely arise from their continuing presence in financial markets.

Ellis (1975) has argued that the success or failure of institutional investors can be compared to tennis players who win matches by avoiding the errors of their opponents rather than their positive actions or skills:

...the strategy for winning is avoiding mistakes. The way to avoid mistakes is to be conservative...letting the other fellow [the opponent] have plenty of room in which to blunder his way to defeat...He will try and beat you by winning, but he is not good enough to overcome the many adversities of the game itself (p.29).

This analogy has profound relevance to the institutional investment “game”, because many fund managers are involved in a highly competitive tournament where relative performance returns dominate. Fund managers are discouraged from taking “active” positions which are significantly different from other players’ portfolios and the market benchmark itself, because if these bets do not come to fruition over the relevant performance appraisal period, “mistakes” can lead to significant performance deviations and adverse performance surprises relative to other players.

While quantitative performance analysis techniques may be inadequate in defining skill in investment, reliance upon qualitative/anecdotal descriptions of investment operations, or selective observations of portfolio management processes, also provide an unsatisfactory basis for making valid inductive generalisations about skill in investment, unless overly restrictive assumptions are made that all market participants operate with the same motivations and employ these processes consistently.

3.2.6 Security design and innovation

In considering the definition of investment and functioning of financial markets, scrutiny must be given to the characteristics of the securities which are traded in financial markets. Financial markets can be described more formally as a market for *financial claims*: in their primary function they facilitate issuances of securitised economic interests of enterprises,²¹ while in their secondary function, they facilitate the trading of those economic interests between market participants. Existing economic theory expects prices will be causally related to “fundamental” factors, however, prices of these securities in are likely to be affected by both fundamental factors relating to the enterprise which has

²¹ Financial claims are generic enterprise derivatives which can be issued by public and private sector entities. These securities can be issued out of various legal structures including stock companies, unit trusts, and partnerships.

issued the securities and expectations, and another layer of information about the value of those rights, and specific demand and supply factors.

The pricing of financial claims is therefore a function of both objective and speculative opinion. Financial claims are fungible securities however they can be differentiated from commodities or currencies. Financial claims do not ordinarily create a direct right of ownership over identifiable quantity of assets, but instead give rights to the potentialities of the operating and financial performance of the issuer.²² In a recent example, the Commonwealth Bank of Australia announced an issue of hybrid securities whose interest coupons (and repayment of capital) were dependent upon the fees generated by its Australian funds management business (Commonwealth Bank of Australia, 2006). Financial claims therefore can be contrasted with commodities and currencies where the market price reflects the expected value of specific underlying assets. Financial claims are economic derivatives which confer rights which are governed by the terms of issuance, the enterprise's constitution, the periodic valuation of enterprise's assets (as reflected in financial statements) and in some cases (e.g. securitisations), the wealth flows which are generated by specific assets of an enterprise.

Even in their primitive forms – “plain vanilla” bonds and equities – financial claims can be differentiated from physical commodities and currencies because their promises (and thus outcomes) are not guaranteed nor necessarily physically deliverable. There is no certainty that an enterprise will generate profits nor distribute income to holders (in the case of an equity), nor pay interest on debt or honour the repayment of its liabilities (in the case of a bond). In the case of equity securities, the holder of the financial claim is entitled to a proportionate share of equity and any distributed income (dividend streams).

²² The profusion of financial derivatives (which are securities traded on organised financial exchanges or “over-the-counter” gives rise to indirect claims to underlying securities or commodities which are priced according to movements in underlying securities and other economic indicators.

Generally, the issuers of these claims are continuing entities, entitling the holder to their rights into perpetuity. Holders of equity securities are exposed to uncertainty of both their capital and income because there is no guarantee of the success of the enterprise or the preservation of value of any real assets it acquires. In the event of liquidation, equity holders relinquish their priority to distributions of capital to other stakeholders (creditors). In the case of bond securities, the financial claim typically entitles the holder to receive regular income instalments, and repayment of principal (face value) at the fixed term of the security. Bondholders generally have no rights to participate in the issuer's income or net assets beyond the scheduled repayments of interest and capital, and assets are generally sequestered to provide security for the bond.

The continuing process of financial innovation has resulted in the profusion of securities which are further evolved from the primitive forms of financial claims. This process has introduced the additional analytical and complexities, including uncertainty of the economic payoffs.

3.2.7 Tradeable markets

In the context of modern investment, the opportunity set available to financial fiduciaries is a defined subset of the total capitalisation of financial markets known as the “tradeable” or “investable” market. Most major stock market indexes are now “free-float” adjusted to take into account the actual availability of stocks for portfolio investment, rather than their total market value (and thus economic size). The process of free float adjustment recognises that a firm's full market value may not be available for trading on a day-to-day basis: including a security at its full market (economic) capitalisation, could result in its “overrepresentation” within the index. This is considered undesirable because the index would not be representative of the market, and can create excessive demand for those securities, resulting in liquidity “squeezes” and pricing volatility.

The free float adjustment process reduces the number of shares which would otherwise be included in the firm's index capitalisation where they are not considered to be freely tradable. The main categories of free float adjustments relate to: government regulations which restrict ownership and/or trading of securities (for example, foreign portfolio investors); the existence of cross-holdings; and, strategic shareholdings held by governments or firm founders. The overriding rationale of this adjustment methodology is to create realistic benchmarks for performance measurement and portfolio construction purposes, and was thus, specifically created for the purposes of the fiduciary finance industry and its stakeholders.²³

Free-float adjustment is a relatively recent phenomenon and represents a significant departure from the implicit theoretical usage of indexes that the universe of available assets is defined and measured according to full market value. The International Finance Corporation (IFC) pioneered float-adjustment for its emerging markets indices in the late 1980s, principally to take into account the substantial levels of cross-shareholdings and restrictions placed upon portfolio investors in the emerging markets, which made overrepresentation issues particularly acute. The leading global index publishers (Dow Jones/Stoxx, Financial Times, MSCI and Standard & Poor's) have all moved to full free-float adjustment. Standard & Poor's completed the transition to free-float adjustment for its Australian indexes the end of 2002, announced that it would adopt full-float adjustment for its US indices (including the S&P500) by the end of September 2005 (Standard & Poor's, 2003, 2004a). The Tokyo Stock Exchange announced that it would transition its TOPIX index to free-float adjustment by early 2005. The widely-quoted Dow Jones Industrial Average index, which uses a price-weighted methodology, is not currently adjusted for free-float, but comprises only the largest and most liquid US stocks.

²³ For more information on the free float adjustment methodology, refer: MSCI (2001); Standard & Poor's (2003, 2004a, 2004b).

The aggregate effect on market capitalisation for the leading Australian benchmark, the S&P/ASX200 Index is shown in table 3.1. This shows the effective economic “discount” applied between the total market value of the stocks included in this index, and the value which is ascribed in the index for performance calculation purposes (the econometric implications of these discrepancies are discussed in more detail in chapters 5 and 6).

Table 3.1: Free-float adjustment in the S&P/ASX200 Index

In the context of contemporary investment, consideration must therefore be given to free float adjustment process (existing levels and *potential* changes) because it is a discrete decision-making process which is undertaken by index compilers and has direct impacts on the equilibrium prices of securities. Where the index compiler increases float adjustment for a particular security, for example, it will encourage investors – especially index-trackers – to purchase more securities to bring their proportionate portfolio weightings into line with the index weighting. Conversely, where a stock’s free-float weighting is reduced due to perceptions regarding the tradability of the stock, index-tracking investors will reduce their proportionate holdings to ensure that there is consistency between the index and the portfolio. In summary, it is important to note that the free float adjustment process *per se* – although it is not related to the fundamental value of an issuer, or the investment prospects of a particular financial claim – may nonetheless, have profound implications for both the “market” overall, and the pricing dynamics for individual securities.

3.2.8 Third dimension markets

Madhavan (2000, 2002) has noted that the emerging dominance of institutional investors has seen the development of third dimension markets (electronic crossing networks). The first crossing network (E-Crossnet) was created by Barclays Global Investors (a large institutional funds manager) in 1999 to facilitate efficient trading and settlement between the various fiduciary products and investment strategies which otherwise would have been required to trading “against each other” in an open market (Barclays Global Investors, 2003).

These networks allow institutional investors to bypass public markets to trade anonymously and at low cost, without affecting the liquidity of primary markets and attendant price frictions. Trading within in these markets is typically undertaken to effect liquidity and thus can incorporate trade-offs between price discovery and best execution.²⁴

3.3 Formulating an applied definition of investment

The development of investment theory has been anchored to classical economic assumptions, and profound (philosophical/cultural/ideological) beliefs. As noted above, the measurement and definition of investment has also imputed that “success” is derived as a function of skill rather than luck, and even successful practitioners have suggested that it is an activity which is subject to an underlying moral code of

...certain shared beliefs and ethical standards, which although not necessarily practiced but were nevertheless quite universally accepted as desirable...and values of shared beliefs and ethical standards combined with a faith in reason and a respect for science with the Judeo-Christian ethical tradition...to provide...a more reliable guide to what is right and what is wrong (Soros 1987, p xxi).

More recently, scholars have questioned the putative distinction between traders and investors: assuming that securities are priced according to their present values ‘...since a linked chain of “traders” performs the same assessment of [present] values as a single “investor”, the claim that trading is bad and investing is good cannot be correct’ (De

²⁴ For a recent discussion of crossing networks see Degryse, Van Achter and Wuyts (2006).

Long *et al.*, 1990a: 732). It is desirable, therefore, that the definition of investment should be framed from an arbitrary and objective foundation: that all financial markets participants possess an equi-probable opportunity of being “successful” in investment.

3.3.1 What is an investor?

Finance theory generally provides a normative foundation for the investment function, and thus, effectively attempts to specify the activities of “investors” in the financial markets according to that frame. The theoretical definition of “investment”, therefore, depends upon the definitions and assumptions which accompany the notion of “investors” (and their actions). Existing approaches to defining investment have therefore attempted to generalise behaviour from the observed outcomes of market participants using heterogeneous financial objectives and commercial rationales.

This approach is problematic for two main reasons. First, the validity of any universal definition of investment may be criticised where it relies upon an assumption that all (or most) market participants conform to the specifications of an investor as provided by orthodox economic theory (i.e. value-seeking, utility maximising, and rational). If the majority (or an observable cohort) of market participants does not confirm to the definition (and its attaching assumptions), the definition of investment constructed from this intellectual foundation may become ambiguous; either as having any practical meaning, or as a standard for research and experimental purposes. Second, if the assumption that “investment” is the primary or normal purpose of all (or most) market participants, this presumes that financial markets are primarily devoted to fulfilling this function. Whilst these presumptions conform to economic orthodoxy, they do not necessarily provide greater insights for understanding the prospective pricing of financial securities in real world markets. Accordingly, it is understandable that previous attempts by scholars to define investment according to a normative economic framework, have introduced additional conflict and confusion with researchers becoming fixated with

purely definitional issues. Their efforts may also have created significant intellectual diversions and obstacles to identifying the “true” (or fundamental) influences on market pricing.

Therefore, it is contended that because the theoretical generalisations of “investment” and “investors” are unlikely to be applied universally across all market participants, definitions advanced on this basis are likely to be fruitless and conflicted. Therefore, to advance a practical definition of investment, distinctions between “investors” and “non-investors” need to be removed: all players in financial markets should be simply termed *participants*. This terminology conforms to the overall objective of establishing an unbiased framework and circumvents the need to consider the assumptions or anomalies drawn by reference to existing orthodox theory.

3.3.2 What is the purpose of investment?

Axiomatically, as discussed above, any definition of investment which conforms to the conventional theoretical framework will be incapable of universal generalisation unless the majority of market participants are in conformance with the expectations and beliefs of this framework, and that this generalisation reflects *reality*. This is likely to be problematic in practice because there are marked differences in behaviour of market participants, and many participants cannot be observed. It is therefore more efficacious to construct a definition which incorporates the common *outcomes* sought by *all* participants in financial market, and thus, to focus on the essential practical objective of investing (rather than *what* and *how* outlined earlier).

The definition of investment therefore requires restatement into a *universal* form to which all market participants can readily conform, regardless of their individual objectives (desired outcomes), levels of wealth, definitions of risk, levels of risk-aversion, stated methods of security analysis and selection, and observed or assumed behaviours. The

primary activity of market participants resides in developing and trading opinions about the future: accordingly, it is unsurprising that a formula or system exists which can describe potentially random or infinitely variable expectations. Regardless of the processes used, therefore, investment can be accurately described as an activity of forming opinions and/or speculating on changes in those opinions: a definition first proposed by Keynes (1936). Further, as Williams (1938) elucidated, most market participants are involved in either or both, although the academic and practitioner literature has popularised the notion that forming *opinion* is a craft whereas forecasting opinion is speculation. Accordingly, investment principally involves making judgements about the economic returns and wealth flows which are generated by firms and their issued securities which are traded in financial markets.

This applied definition of investment conforms with the analytical processes first espoused by Graham & Dodd (1934) and Williams (1938) which emphasised the importance of forecasting earnings capacity and the income actually received by the security holders (i.e. distributed to the security holder in the form of dividends and interest coupons). These analytical processes persist in the contemporary practices employed by investment practitioners, however, they primarily focus on the “underlying earnings” and “free cash flows” of enterprises (rather than the income actually *distributed* to the security holders).

In practice, it is not possible to confirm (nor necessary true) that all participants undertake such “educated” or “rational” processes: they may instead rely upon other bases for their opinions – intuition, price momentum, competitor positions, psychological/cognitive phenomena – and these may be linked to agency considerations. Indeed, given the basic nature of financial markets which exist merely to facilitate pricing based upon shared opinions, ideas and expectations, any standard “system” of investing articulated in

comprehensive detail and practised universally, would create prices based upon what Williams (1938) noted was “supposed equilibrium”.

The primary purpose, and thus definition, of investment therefore, can be defined as *formulating* and *acting* upon opinions, to derive wealth from correctly anticipating changes in the prices of financial claims.²⁵ In its simplest manifestation, therefore, investment is an activity which involves buying a security at a price which is lower than its expected future value, or selling a security at a price which is higher than its expected future value, according each participant’s *prerogative*.²⁶

The purpose of investment in a portfolio management context, therefore, involves managing an inventory of securities to ensure that its terminal wealth (the combination of its market value and income receipts) is higher than its original purchase cost, whilst according with the unique investment prerogatives of each participant.²⁷ This definition of investment requires expansion (provided in chapter 9), however, because this process involves a broader range of analytical and transactional decisions. For example, investment can be further categorised into holding and transacting activities: both imply that *some* decision has been made (either to hold an asset or to transact the asset).

Finally, this definition acknowledges that for the counterparties to any transaction (or non-transaction), financial markets represent a “zero-sum” game, however the direct costs of financial market function (brokers’ commissions and taxes) means that it actually is a

²⁵ Although the construct of this definition is intended to be as broad as possible, it suggests by a corollary, that market participants which do not make any judgements, namely index-tracking strategies, cannot be regarded “investors”.

²⁶ The term “prerogative” is intended to embody any constraints faced by the participant, its financial objectives, and the methodology and valuation methods (if any) it applies in the process of undertaking investment. The measurement of terminal wealth will also be dictated by the investor’s prerogative, which in the context of fiduciary products will depend on the stated investment horizon. See chapter 9 for a discussion of prerogatives within the context of a conceptual approach to pricing financial claims.

²⁷ Given that many securities also generate income distributions, it is also common that investors will hold securities in order to meet other needs such as current income.

“negative sum” game for transacting participants. Unlike gambling transactions however, the duration of positions in the financial markets may be sustained over an extended period during which new counterparties may enter the market with additional sources of capital, thus, making investment in practice, a “positive sum” game.

3.4 Summary

The emergence of investment as a fully-fledged global industry, has created a natural desire within industrial and academic spheres to justify its existence according to professional standards, specific skills and normative economic rules. Attempts to define investment according to economic fundamentals have remained in an unsatisfactory state, and the shortcomings of this approach have been highlighted by the episodic price volatility in financial markets.

Early scholarly efforts to develop a definition of investment which accorded with orthodox economic theory have been predicated upon subjective estimates of *value* and *risk*. Other attempts which have asserted that investment is a natural corollary of speculation have also proved problematic because of the difficulties in ascertaining a dichotomy between speculation and non-speculation. Even if a fundamental definition could be generalised, it would not provide a law of “correct” pricing of investment securities because price discovery and market equilibrium remains a function of marginal opinion and the transactions which occur at any point in time result from market participants which may have disparate prerogatives.

Within the discipline, there is acknowledgement that the activities of the majority of market participants may not accord with orthodox economic precepts and may be dictated by the dynamics of fiduciary product markets. From more practical perspective, the pursuit of a “fundamental” strategy has historically exposed beneficiaries to unacceptable opportunity costs. This is particularly relevant because the gatekeepers of fiduciary

finance award new business flows and reallocate capital amongst those fund managers in the “investment game” who can offer competitive returns relative to the market and other fund managers.

Importantly, this chapter has highlighted that the prudential investment standards which pre-date scholarly attempts to define investment, and have been modernised relatively recently via the codification of modern portfolio theory. Financial fiduciaries have been freed from many of the restrictions which previously governed investment practices. Notably, the acknowledgement of the primacy of absolute returns, has meant that contemporary investment practices are increasingly guided by an underlying principle of *relativity* which is relevant when assessing each investment selection’s *expected* contribution of returns of the “whole” portfolio, and when measuring *ex post* contributions of selections to the portfolio (and the performance of the market, and peer portfolios). The latter aspects are of immediate concern for fund managers whose *raison d'être* is to deliver “competitive” returns according to their specified investment policy and product cohort: their goal-seeking therefore depends on the specifications of competitors (whether they are the market or peer products) rather than any *a priori* relating to economic fundamentals.

This chapter has highlighted the importance of free-float adjustment and the tradable component of the financial markets: these are fundamental considerations given the primacy of relativism in investment and the usage of indexes as performance benchmarks which literally define the “investable universe” (rather than the true economic opportunity set). Finally, this chapter proposed a universal definition of investment which emphasises performance outcomes and dispenses with the analytical complications associated with considering *how* returns are generated. This definition therefore places the potentialities of all investor portfolios on an equal and arbitrary footing and this allows an unbiased analysis of their *ex ante* performance without any *a priori* assumptions about skill.

CHAPTER 4 – INVESTMENT AS A SCIENCE: A SYNTHESIS OF THE EXTANT LITERATURE

4.1 Introduction

In chapter 3 of this thesis, an applied – rather than scientific – definition of investment was developed. This was informed by the practical constraints and endogenous forces – the *business* of investment – which shape the activities of fund managers and institutional investors (the principal subjects of academic research). Ascertaining the scientific status of the investment discipline remains a fundamentally important question, especially given the magnitude of capital entrusted to financial fiduciaries, and society’s reliance upon financial markets to provide optimal economic outcomes.

Frankfurter and McGoun (1996) have provided a thoughtful critique of finance theory and assert that finance is ‘...a social science masquerading as a natural science’ (p. 5). Further, they argued that its capacity to generate real knowledge (i.e. *meaning*) was diminished by priority placed upon the acquisition of data and use of statistical techniques (i.e. scientific *methods*) which have not been accompanied by any rigorous, philosophical justification (i.e. a scientific *methodology*).²⁸ The emphasis on *method* within the investment discipline encourages a propensity for pseudo-scientific research: this is an evergreen concern also applicable to economics and other social sciences. Mayer (1933), for example, enjoined economic scholars to eschew ‘...pseudo-scientific reasoning and sophistry...’ (p. 419).

Given the considerable breadth of the extant literature, and the attendant complexities of research methods, an analytical “filing” system is needed which considers both the *methodologies* and *methods* used, rather than merely summarising publications

²⁸ As is explained in chapter 1 of Frankfurter and McGoun (1996), the distinction between “method” and “methodology” is not mere semantics: the authors note that the bulk of publications relate to “methods” (the doing of research) while “methodology” (which requires articulation of the intellectual rationale and the fundamental knowledge which is expected to be derived from the research efforts) is given less attention.

chronologically.²⁹ Further, to ascertain the scientific status of the investment discipline, a philosophical synthesis of the extant literature is required to address questions of epistemology (i.e. the scope of the research) and ontology (i.e. what knowledge has been derived). Kuhn's *The Structure of Scientific Revolutions* (1996) provides an efficacious philosophical framework for completing this task by classifying the main research efforts (or "paradigms") existing within the investment discipline, their precepts, and methods of discovery ("exemplars").³⁰ Concurrently, this framework permits a critical evaluation of the scientific literature with cognisance of the methodological foundations underlying the respective paradigms. The scientific value of the literature can therefore be appraised according to the implicit methodological benchmarks which apply to the paradigms, and the more stringent criterion of *meaning*. Moreover, a paradigmatic synthesis is efficacious because it highlights anomalies and unresolved problems which should provide the impetus for revolutionary research and scientific advancement.

This chapter is organised as follows. By way of background, and given the extensive reliance upon inductive science to develop and verify theoretical conjectures within the discipline, the first part discusses important features of probability and the positive economic (or "logical-positivist") methodology. The second part orients the reader to the salient elements of Kuhn's paradigmatic framework (including the definition of research paradigms, the importance of crises in scientific development, and the transition of a scholarly discipline to scientific maturity). The third part undertakes a synthesis of the extant literature summarising the methodological bases, experimental methods and models, and the principal precepts articulated within the respective paradigms of the investment discipline. The final part reflects on the paradigmatic analysis, summarises

²⁹ For the purpose of this synthesis, only principal literature will be cited and examined. More comprehensive and sequential reviews of the literature are provided in the respective chapters of the thesis.

³⁰ The identification of paradigms, which Kuhn never precisely defined, necessarily remains a matter of personal opinion.

the discipline's state of scientific advancement, and provides the philosophical locus for the ideas advanced in the remainder of the thesis.

4.2 Preliminaries

4.2.1 The anchoring of theoretical development to neoclassical economics

Finance theory and the investment discipline have only achieved scholarly emancipation in the latter half of the twentieth century.³¹ As was noted in the preceding chapter, the elucidation of investment theory has typically sought to formalise immutable laws (or constants) based on a simplified state of the world (i.e. financial markets which are “observed” through aggregate data): it is suggested that practitioners can use these to divine between investment choices according to *value*, thus, providing an *economic rationale* for financial markets and scientific validation of the investment discipline.

In the process of elevating the investment discipline into the social sciences (and equating it to the physical sciences), however, has largely remained anchored to the normative assumptions and beliefs of neoclassical economics. The resultant theorising, therefore, has not necessarily been pre-disposed to the acquisition of real knowledge from practices observed in the commercial world, which incorporate imperfections arising from transaction costs, the impositions of government regulation, and the incursions of human nature. This anchoring has had pervasive effects on both the theoretical conjectures, and judgements regarding their scientific value. The *overt* rejection of orthodox theories and conjectures – suggested by the apparent “failure” of predictive valuation models, and episodic price “bubbles” in financial markets generally³² – reveals a tacit acceptance of the validity of neoclassical economics and beliefs about how markets actually work. However, if an intellectually unencumbered perspective is adopted, it may be validly

³¹ The emphasis of the literature reviewed in this chapter will be the *investment* aspects within the broader finance discipline: the valuation of securities, the making of portfolios, and the design and management of intermediated financial products.

³² A taxonomy of financial crises is provided by Kindelberger (1996).

questioned whether market “failures” or the apparent “irrationally” of economic actors, should instead be attributed primarily to an ideological pre-disposition.

On the other hand, the proposal of heterodox theories (and thus, *implicit* rejection of the theoretical orthodoxy) has usually been motivated by attempts to reconcile observations with normative *a priori*s of neoclassical economics, and/or, to confirm their inapplicability given real-world experience. As discussed in chapters 2 and 3 of this thesis, however, more prosaic and practical explanations exist for the motivations, behaviours, and the ultimate transactions of financial fiduciaries (and thus, the financial markets in aggregate). Other ephemeral and nebulous factors (such as psychology, marketing, and consumers’ expectations of investment practitioners) which have been spelt out in a piece-meal fashion (and resulted in *ad hoc* theorising and plausible hypotheses about pricing outcomes) have not been reconcilable to a normative framework of neoclassical economics.

Accordingly, the path to scientific legitimacy for the investment discipline should not be constrained according to normative expectations, nor can it be assured by empirical or anecdotal evidence confronting the “inappropriateness” of assumptions based in an economic ideology. Instead, cognisance of the institutional structures and the rules which govern the practice of investment *and* normative expectations is necessary; especially since investment is an activity which is conducted within the social context of the financial markets (which are ultimately self-perpetuating).

4.2.2 Construction and verification of scientific conjectures

The process of ascertaining scientific value is inextricably linked to the testing and verification methods employed. Within the discipline researchers have typically resorted to what can be termed “intensive empiricism”: to buttress their propositions, they use detailed empirical investigations (often using lengthier, more granular datasets) and

statistical techniques of increasing complexity to substantiate the “scientific” rigour of their conjectures, to corroborate facts with theories, and importantly, to differentiate their scholarship. Conversely, researchers proffering conceptual or non-quantitative arguments face charges of being “unscientific”, “polemical” or “descriptive” and they must address the reasonable challenge of furnishing objective evidence to affirm their arguments.

Critics of intensive empiricism have noted that the reliance upon theoretical abstractions implicit in financial modelling and econometric techniques (which have contributed much to the scientism, as opposed to descriptiveness, of the discipline), and the disinclination of researchers to directly observe the behaviour of market participants, have inevitably reduced the meaning of these efforts, and has placed an excessive reliance upon beliefs or knowledge derived from logical arguments. For example, Frankfurter and McGoun (1996) have noted that the development of finance as a social science has typically relied upon aggregated historical market data and statistical analyses rather than direct observations of those agents, diminishing its ability to provide *meaning* (p. 5). Toporowski (2000) has also noted that the use and analysis of historical data emanating from market mechanisms without cognisance of the perceptions and experiences of the market participants imbedded in this data has obscured ‘...the processes and mechanisms which brought about the results which financial theorists claim to be able to predict or explain...’ (p. 6).

These more recent criticisms are undoubtedly valid, however, the principal point which requires emphasis is that *probability* (i.e. statistical inductions) is the underlying basis upon which many conjectures have been advanced *and* verified.³³ Given the strident

³³ In chapter 7 of Frankfurter and McGoun (1996), the authors provide a detailed explanation of the probability theories which underlie the formal language of finance, and the effects on meaning where observations are not representative and/or simplifying assumptions are employed to define the key terms of “risk” and “uncertainty”.

concerns of scholars regarding the exponential growth of pseudo-scientific research methods, it is invaluable to revisit the numerous warnings regarding the simplistic application of inductive probability, and the misuse of associated statistical techniques.

Keynes' magisterial *Treatise on Probability*, first published in 1921, presciently outlined these concerns within commercial contexts such as insurance and law (rather than purely theoretical or abstract language). In relation to rational beliefs (and thus the current state of knowledge) and predictions (inferred knowledge) he noted that all empirical science generally relied upon methods of induction and analogy. In this context, the acceptance of inductive arguments as rational beliefs was inextricably linked to both the probability relations *per se* and the context provided by the analogy:

...to argue the *mere* fact that a given event has occurred invariably in a thousand instances under observation, without any analysis of the circumstances accompanying the individual instances, that is likely to occur invariably in future instances, is a feeble argument because it takes no account of the Analogy (Keynes, 1952: 407).

Further, he noted that probability could summarise the balance of opinion regarding *premises* but that it could not be used to make any judgements about the validity or plausibility of those premises. Keynes also counselled that probability focused on the objective relations between propositions, rather than creating new knowledge about observed events: [it] '...can only strengthen a pre-existing presumption; it cannot create one...' (Keynes, 1952: 426). In contrast to façade of objectivity typically associated with empirical research methods and statistical reasoning, Keynes specifically acknowledged that the scientific validity of inductive generalisations depended, at least partially, upon measurements derived from an investigator's existing knowledge or intuition which provided

...some reason for thinking that there may be a causal connection between two quantities...the truth is that sensible investigators only employ the correlation coefficient to test or confirm conclusions at which they have arrived on other grounds (Keynes, 1952: 426).

Further, he highlighted the important distinction between *descriptive* and *inductive* science, especially in the context of correlation coefficients:

The statistician, who is mainly interested in the technical methods of his science, is less concerned to discover the precise conditions in which a description can be legitimately extended by induction. He slips somewhat uneasily from one to other, and having found a complete and satisfactory mode of description he may take less pains over the transitional argument, which is to permit him to use this description for the purposes of a generalisation (Keynes, 1952: 327).

The truth of this is obvious; yet, not unnaturally, the more complicated and technical the preliminary statistical investigations become, the more prone enquirers are to mistake the statistical description for an inductive generalisation. This tendency, which has existed ...from the eighteenth century down to the present time, has been further encouraged by terminology in ordinary use. For several statistical coefficients are given the same name when they are used for purely descriptive purposes, as when they are used to measure the force or the precision of an induction...The term 'correlation' itself is used *both* to describe an observed characteristic of particular phenomena *and* in the enunciation of an inductive law which relates to phenomena in general (Keynes, 1952: 329).

4.2.3 *The methodology of Positive Economics*

Frankfurter and McGoun, 1996 have asserted that the logical positivist methodology provides the philosophical and ideological justification for much of modern financial theory.³⁴ Friedman's seminal essay, *The Methodology of Positive Economics*, published in 1953, codified this methodology for its applications in financial economics. As discussed in the introduction above, cognisance of the salient features of this methodology is an essential prerequisite before a paradigmatic analysis (which requires judgements about scientific value and methodology) can be undertaken.

Friedman established a clear overriding principle for scientific development stating: 'In short, positive economics is, or can be, an "objective" science, in precisely the same sense as any of the physical sciences' (Friedman, 1953: 4). He therefore prioritised practical outcomes rather than "scientism", and nominated *predictive power* as the ultimate standard by which the scientific value could be judged, thus providing the methodology's principal and innate benchmark criterion of *meaning*:

³⁴ Frankfurter and McGoun (1996) devote an entire chapter (chapter 3) to a comprehensive critique of the methodology of positive economics. The current section highlights aspects which are explored in chapters 5 and 6 of the thesis.

The ultimate goal of a positive science is the development of a “theory” or “hypothesis” that yields valid and meaningful (i.e., not truistic) predictions about phenomena not yet observed...’ and ‘...it is [in part] a body of substantive hypotheses designed to attract essential features of complex reality (Friedman, 1953: 7).

He opined that ‘[v]iewed as a body of substantive hypotheses, theory is to be judged by its predictive power for a class of phenomena which it is intended to “explain”...’ (p. 8) and that it *should not* represent a

a retreat into purely formal or tautological analysis...formal logic and mathematics, which are both tautologies...But economic theory must be more than a structure of tautologies if it is to be able to predict and not merely describe the consequences of action; if it is to be something different from disguised mathematics (Friedman, 1953: 11-2).

The methodology freed up the construction of hypotheses and introduced a theme of practical expediency in relation to the realism of assumptions, the quality and scope of data used, experiment design, and investigators’ interpretations of their findings. For example, rather than being realistic, Friedman (1953) argued that

...the relevant question to ask about the “assumptions” of a theory...is whether they are sufficiently good approximations for the purpose in hand. And this question can only be answered only by seeing whether [the theory] yields sufficiently accurate predictions (p. 15).

The positivist methodology therefore ignores the *plausibility* of hypotheses and underlying assumptions; instead it focuses upon verification (i.e. the consistency of predictions); and approach which Toporowski (2000) has argued has ‘...implied conceptual promiscuity’ (p. 138). In terms of verification, the methodology has placed significant reliance upon probabilistic frequency, and offers inductive generalisations as deductions, albeit with an unusual “twist”:³⁵

Given that the hypothesis is consistent with the evidence at hand, if further testing involves deducing from it new facts capable of being observed but not previously known and those deduced facts against additional empirical evidence. For this test to be relevant the deduced facts must be about the class of phenomena the hypothesis is designed to explain; and they must be well enough defined so that observation can show them to be wrong. (Friedman, 1953: 13)

³⁵ This directly contrasts with Keynes’ comments regarding the use of probability to create knowledge: ‘Our state of knowledge about our material must be positive, not negative, before we can proceed to such definite conclusions as they purport to justify’ (Keynes, 1952: 384).

Yet the continued use and acceptance of the hypothesis over a long period, and the failure of any coherent, self-consistent alternative to be developed and be widely accepted, is strong indirect testimony to its worth. The evidence *for* a hypothesis always consists of its repeated failure to be contradicted, continues to accumulate so long as the hypothesis is used, and by its very nature is very difficult to document at all comprehensively (Friedman, 1953: 23).

Significantly, the methodology incorporates two seemingly plausible presumptions which effectively provide pre-emptive insulation from criticisms of predictive failure. First, a persuasive argument was advanced for using “available” data in attempts to objectively substantiate a hypothesis, even where it was incomplete or haphazardly collected:

[F]actual evidence can never “prove” a hypothesis; it can only fail to disprove it, which is what we generally mean to say somewhat inexactly, that the hypothesis has been “confirmed” by experience (Friedman, 1953: 9).

Researchers were also given licence to exercise their judgement and intuition when interpreting the “available” data:

But such evidence is far more difficult to interpret. It is frequently complex and always indirect and incomplete. Its collection is often arduous, and its interpretation requires subtle analysis and involved chains of reasoning, which seldom carry real conviction...[but results in] ...a reasonably prompt and wide consensus on the conclusions justified by the *available evidence* (Friedman, 1953: 11).

Further, the paucity of available data would not necessarily affect the validity of a hypothesis: ‘Observed facts are necessarily finite; possible hypotheses, infinite. If there is one hypothesis that is constant with the available, there are always an infinite number that are...’ (Friedman, 1953: 9).

Second, it was contended that “controlled” experiments could not be conducted in financial economics: the existence of “disturbing influences” in the observable phenomena would conspire to restrict conclusive verification of hypotheses:

No experiment can be completely controlled, in the sense that some *disturbing influences* are relatively constant in the course of it. Evidence cast up by experience is abundant and frequently conclusive as that from contrived experiments; thus the inability to conduct [controlled] experiments is not a fundamental obstacle to testing hypotheses by the success of their predictions (Friedman, 1953: 10) (emphasis added).

The necessity of relying on uncontrolled experience rather than on controlled experiment makes it difficult to produce dramatic and clear-cut evidence to justify the acceptance of tentative hypotheses. Reliance on *uncontrolled experience* does not affect the

fundamental methodological principle that a hypothesis can be tested only by the conformity of its implications or predictions with observable phenomena; but it does render the task of testing hypotheses more difficult and gives greater scope for confusion about the methodological principles involved. More than other scientists, social scientists need to be self-conscious about their methodology (Friedman, 1953: 40) (emphasis added).

Tacitly, these arguments infer that a degree of “chaos” or randomness in financial markets was inevitable; or perhaps, that they were capable of the “catalysing phenomena” observed in the laboratories of chemistry. Thus, the methodology apparently licensed researchers to attribute deterministic relationships amongst the available observations (whilst ignoring direct and causal relations embedded in this data) as identified by the statistical procedures used, or potentially, pure statistical artefacts. Whilst the assertion that financial markets are incapable of controlled experiments appears plausible, it is important to note that the experimental data used for testing and evaluation of hypotheses in financial economics, generally (if not exclusively) comprises *ex post* observations which are derived from only a limited range of variables (e.g. asset returns, portfolio weighting).

4.3 A philosophical framework for evaluating the scientific status of investment

4.3.1 Defining paradigms

Kuhn (1996) has acknowledged that the path of scientific development was neither linear nor accretive: he argued that even significant shifts in the *doing* of research (i.e. methods) and widely-held beliefs, would not necessarily result scientists and their adherents drawing ‘...constantly to some goal of nature drawn in advance...’ (p. 171). Kuhn’s paradigmatic framework, therefore, is ideally suited to the investment discipline; where research is principally concerned with documenting an applied activity conducted within a social environment and is unlikely to yield immutable laws and constants typical of the “laboratories” of natural sciences.

At the outset, a paradigmatic evaluation of the investment discipline appears problematic, because Kuhn himself questioned whether social sciences generally had acquired a paradigm (Kuhn, 1996: 15). Similarly, Frankfurter and McGoun (1996) have imposed *meaning* as their principal benchmark/criterion of scientific value, and conjectured whether finance theory had ever experienced a paradigm: they argue that acute problems remain unresolved within the discipline despite the usage of “scientific” methods which are rhetorical and have not explained reality (p. 240).

Kuhn’s original definition of paradigms was quite broad: they were research efforts whose unprecedented achievements define the legitimate problems and methods of a research field, and ‘...attract an enduring group of adherents from competing modes of scientific activity...’ and are ‘...sufficiently open-ended to leave all sorts of problems for the redefined group of practitioners to resolve...’ (Kuhn, 1996: 10). Subsequently, (in a postscript) Kuhn refined his characterisation of paradigms as being a “disciplinary matrix” comprising four main components: *symbolic generalisations* which look like [but are not necessarily] laws of nature (p. 182-3); *shared commitments* to heuristic models and beliefs in particular models (p. 184); quantitatively-justified *values* which permit puzzle-solving (p. 184); and, *exemplars*: concrete problem-solutions which provided license to researchers to continue fine tuning science within the discipline (p. 186-7).

This definitional latitude makes it feasible to organise the research according to the paradigmatic framework to address questions of epistemology. However, from an ontological perspective, it *is* necessary to address Frankfurter and McGoun’s non-trivial criticism that the respective theoretical paradigms have not provided any *meaning*. However, any critical analysis of the research paradigms must also be undertaken with cognisance of their respective methodological foundations because “scientific” and “real” knowledge can potentially exist in parallel states: provided research is conducted in conformance with the methodological specifications of the paradigm, it may be

considered “scientific” even though it does not deliver knowledge about investment and the financial markets. Further, denying the discipline the *existence* of any paradigms, *ipso facto*, precludes any considered analysis using the paradigmatic framework. However, according to Kuhn’s own specifications of paradigmatic development, it is impossible to ignore the following disciplinary features: *viz.* specialised scholarly and professional journals; the inclusion of empirical and theoretical research literature in the curricula of academic schools; intellectual adherents of certain research techniques; and, the inclusion of theoretical precepts in general economic dialogue (Kuhn, 1996: 19-20). Therefore, by relaxing the precondition that paradigms could only *exist* where they provide *meaning*, it is possible to assess scientific *advancement* achieved within the respective paradigms, and thus the discipline’s attainment of scientific status overall.³⁶

4.3.2 *Scientific activities and anomalies within paradigms*

Kuhn’s philosophical framework describes the important effects that paradigms have on the community structure and activities of scientists. They focus and bind together research within disciplines according to the avenues of inquiry, formulation of questions, the methods and experimental apparatus used for examining questions and solving problems, and the demarcation between what *beliefs* are relevant and meaningful (Kuhn, 1996: 128).

Kuhn noted that paradigms were strongly self-insulating: most scientists were engaged in “normal” science which strived to bring fact and theory into closer agreement and attempts to solve puzzles which queried the validity and existence of the paradigm.³⁷

Importantly, he noted that these “mopping up” efforts which preoccupied most scientists,

³⁶ By identifying the paradigms according to their respective objectives, methodology and methods, ontological judgements can be made regarding their scientific efficacy and merit.

³⁷ Kuhn originally identified three categories of research efforts which encompassed “normal” science being: the determination of significant facts (which are relevant and useful in explaining nature); the matching of facts with theory (to demonstrate agreement between nature and theory); the articulation of theory (including the determination of universal constants and quantitative laws), and resolution of ambiguities highlighted by/within the paradigm (Kuhn, 1996: 25-7, 34).

refined paradigms into a more precise state but did not challenge the paradigm's fundamental tenets nor seek to confirm or falsify the paradigm's underlying theories.

Whilst not accepting Popper's strict standard of "falsification" as the criterion of scientific status, Kuhn assigned an analogous role to the anomalies which arose from verification procedures: he argued that they induced *ad hoc* adjustments or entirely new conjectures leading to theories of greater verisimilitude (Caldwell, 1991: 4), or at the least, created a better match between theory and observations (Kuhn, 1996: 147).

Further, Kuhn argued that scientific advancement depended heavily on anomalies and experimental novelty, although he noted that researchers could adjust the rules of research to contain them within a paradigm, or ignore them if they necessitated extensive changes to the research tools or values. Anomalies, however, were especially significant because they provided the impetus for *extraordinary* research which resulted in scientific discoveries and permitted *scientific revolution* – where one paradigm displaced another mired in crisis which would then be judged as being scientifically invalid (Kuhn, 1996: 6, 79).

4.3.4 Scientific advancement and competing paradigms

Kuhn's formulation of scientific progress contended that a new paradigm would only be accepted where it was better at explaining facts than its competitors *and* when its theories were verified against nature. Further, he argued that the falsification of a paradigm by direct comparison with nature would not automatically result in its invalidity, without the provision of an alternative paradigm, as this '...would be to reject science itself' (Kuhn, 1996: 77). Kuhn therefore envisaged scientific revolution as a transition through a series of "incommensurable" (i.e. mutually exclusive) paradigms.

Given the social context within which investment is conducted, however, it is foreseeable however that the scholarly discipline could remain indefinitely suspended in what might be termed a “state of scientific adolescence”: unable to experience scientific *revolutions* and without the emergence of a dominant paradigm of superior merit permanently displacing its competitors. Rather, as attested by the growth of the literature, scientific advancement (even where judged according to a more stringent criterion of *meaning*) has occurred: multiple paradigms have developed plausible (and thus potentially valid) models of activity – even if only transiently – despite retaining significant anomalies and acute, unresolved problems.

A paradigm propounding a common model of valuation shared by the consensus of market participants (and is self-perpetuating), would have its “scientific” value confirmed because it explains commonality of marginal opinion (the investing “crowd”). Alternatively, paradigms which are right “most of the time” or which seemingly fit randomness or the cognitive errors of market participants may evolve. However, where transactions are made mechanistically, in accordance with fiduciary product rules, understanding those rules and the broader forces affecting the tertiary markets of fiduciary finance, should provide greater understanding of the observed transactions and pricing outcomes. Overall, Kuhn (1996) noted that scientists (and by extension, practitioners of investment) would disagree about the relative fruitfulness of theories and that their choices could be driven by personal and subjective reasons as ‘...[t]here is no neutral algorithm for theory choice...’ but that ‘...this does not make these choices unscientific’ (p. 200).

Under this “competing paradigms” view, cognisance of the anomalies and unresolved problems existing within the respective paradigms (and attribution of their underlying causes) of the investment discipline becomes critically important. Anomalies would be expected to affect paradigm popularity: paradigms whose descriptive or predictive

capabilities were most tenuous would be expected to be least (most) popular (i.e. least likely to gain adherents) and most (least) likely to be discarded by market participants during periods of market volatility, changes of perception, and/or economic/exogenous “shock” events. In terms of influencing marginal opinion (and thus, the behaviour of market participants), therefore, the *identification* of paradigms *and* the patterns of *adherence* amongst market participants, is of paramount importance because vacillations in paradigm popularity should manifest as paradigm *shifts* which result in market pricing and volume effects for securities. The following paradigmatic analysis, therefore, simplifies and summarises the main paradigms of investment which identifies their methods of discovery, the scientific achievements they have showcased (i.e. their *exemplars*), and, the anomalies and acute problems which remain unresolved.

4.4 The paradigms of investment theory

The paradigmatic analysis provided in this section explores the epistemological setting of the investment literature, the activities of financial fiduciaries, and asset pricing. It provides the context for ontological judgements by identifying the research methodologies and methods employed within the respective paradigms, and the locus for the research methodologies, methods and ideas advanced in the remainder of the thesis.

4.4.1 Intrinsic value/value investing

The origins of investment theory are found in the guise of firm-foundation theory (or colloquially, “value investing”). These efforts were primarily normative in nature: informed by standard economic assumptions about what a security’s price *should* be, and how it *should* be valued. Williams’ *Theory of Investment Value* (1938) expounded a formal economic theory for determining the intrinsic valuation of investment securities and his scholarly objectives were outlined in the preface of his thesis:

...to outline a new sub-science of economics; to relate abstract principles of Economics to practical problems of investment; and, to codify the Theory of Investment Value and make it into the Department of Economics (p. vii).

Williams proposed a discounted valuation method (capitalisation of income) to provide an estimate of investment value:

In any science the choice of definitions is a matter of convenience...we shall see fit to define Investment Value, therefore, as the present value of the future dividends in the case of a stock, or of the future coupons and principal in the case of a bond (p. 5-6).

In addition to the providing a model for defining investment value, William's work was notable for its thoughtful analysis of market characteristics including the behavioural aspects of market participants and the importance of *marginal opinion* (discussed further in chapter 9). He noted that

...the actual price of bonds, and the level of interest rates implied thereby, will represent, not the true equilibrium between supply and demand...but only *supposed* equilibrium... (Williams, 1938:17, emphasis added).

In *Security Analysis*, Graham and Dodd (1934, 1940) espoused a value investing approach which also employed income capitalisation. According to the authors, intrinsic value was justified by earnings power and income distributed to the security holder. They proffered the '...old established acid test that the principal value can be justified by the income...' (Graham and Dodd, 1934: 12). Like Williams, the authors stressed the sufficiency of earnings and dividends, whilst acknowledging the significance of market opinion asserting that: '[a]n investment operation is one which, upon thorough analysis, promises safety of principal and satisfactory return ... (Graham and Dodd, 1940: 54).

The authors also acknowledged the imprecision inherent in their theorising, especially as it related to pivotal concepts of the paradigm:

The phrases *thorough analysis*, *promises safety*, and *satisfactory return* are all chargeable with indefiniteness..."satisfactory" is a subjective term; it covers any rate or amount of return, however low, which the investor is willing to accept, provided he acts with reasonable intelligence (Graham and Dodd, 1940: 55).

Our search for definite investment standards for the common-stock buyer has been more productive of warnings than concrete suggestions. We have been led to the old principle that the investor should wait for periods of depressed business and market levels to buy representative common stocks, since he is unlikely to acquire them at other times except at prices that the future may cause him to regret (Graham and Dodd, 1940: 16).

We must recognize, however, that intrinsic value is an elusive concept. In general terms it is understood to be that value which is justified by the facts, e.g. the assets, earnings, dividends, definite prospects, as distinct, let us say, from market quotations established by artificial manipulation or distorted by psychological excesses (Graham and Dodd, 1940: 20).

In contrast to Williams' attempt to codify the investment discipline within economics, however, Graham and Dodd specifically disavowed any claim to scientific standards and in later editions of their work, justified their security analysis procedures retrospectively according to their successful application over an extended and turbulent period:

We do not claim that these conservative criteria of "value" or "justified price" proceeded from mathematical laws or other a priori principles. They were definitely empirical in their origin. True, they sounded plausible enough when viewed in the light of experience, but it was their conformity with the long-term behaviour of the stock market that gave them their authority. We might say with some confidence that our principles and measures of common-stock investment worked out quite well in practice during the two decades following 1934 (Graham, Dodd & Cottle, 1962: vi).

In the isolated context of security valuation, this theoretical paradigm provided the exemplar of "intrinsic value" which relied upon necessarily *subjective* forecasts (principally, earnings and dividends) *and* importantly, the selection of appropriate discount factors. While estimating value was one challenge, the paradigm's approach to risk and diversification was similarly vague. Williams (1938), for example, stated: '...strictly speaking, however, there is *no risk* in buying the bond in question *if the price is right*. Given *adequate diversification*, gains on such purchases will offset losses...' (p. 67, emphasis added).

A significant omission from this paradigm, therefore, was a formalised method for achieving purposeful diversification within the context of investment *portfolios*. Instead, it effectively relied upon simple averaging according to the expected returns of securities forecasted by the analyst. Whilst this scholarly literature formalised the investment discipline and its exemplars accorded with the antecedent fiduciary principles, its exemplars and values had already been the subject of court challenges (as noted in chapter 3). Financial fiduciaries and trustees charged with ensuring "safety of capital"

and producing sound income returns from the nascent US economy of the late nineteenth century were effectively precluded from investing in securities which did not produce current income and other innovative issues which did not have identifiable assets.³⁸

The inadequacies of this paradigm and its exemplars were illustrated recently during the “dot com” era of 1998 to 2000. Notwithstanding the wealth destruction ensuing the deflation of this stock market bubble, “value investors” sacrificed significant returns compared to their “growth investor” counterparts (and the broad market averages).³⁹ Despite the paradigm’s analytical/methodological shortcomings, intrinsic value endures as a fundamental reference point for both [neoclassical/post-modern] scholars and practitioners alike, as Malkiel (1999) has surmised:

Thus, when all is said and done, it appears that there is a yardstick for value, but one that is a most flexible and undependable instrument...(p. 112)...[t]o be sure, these standards of value are extremely loose ones and difficult to estimate. But sooner or later in a skyrocketing market, some investors may begin to compare the growth rates that are implicit in [the valuation of] current market prices with more reasonable and dispassionate estimates of the growth likely to be achieved (p. 113).

4.4.2 Markowitz’s Portfolio Theory

Theoreticians began to consider how “scientific” methods could be used to construct portfolios which created the best mixture of securities (the “portfolio selection” problem). Markowitz’s (1952, 1959) groundbreaking publications in portfolio theory formalised a normative model where portfolio construction was treated as a problem of utility maximisation under conditions of uncertainty.⁴⁰

³⁸ Later efforts (e.g. Klarman, 1991) have updated the value investing paradigm to incorporate financial market “innovations” such as junk bonds and distressed securities. It is noteworthy that acclaimed “value investors” such as Warren Buffett undertake highly speculative and leveraged positions in commodities, currencies and bullion markets.

³⁹ The magnitude of this shortfall is an important question deserving of empirical investigation.

⁴⁰ In the appendix to the second edition of *Portfolio Selection*, Markowitz notes that his examiners (including Milton Friedman and Jacob Marschak) did not consider his thesis as fitting within the schools of economics, business administration, mathematics, nor literature (Markowitz, 1991: 382).

Importantly, Markowitz acknowledged that security analysis was an art which required the analysts' "best-guesses" of future security returns.⁴¹ Despite portfolio theory's quantitative nature, he noted that it followed-on from, rather than dispensed with, the techniques of fundamental security analysis and return predictions:

'[c]arefully and expertly formed judgements concerning potentialities and weaknesses of securities form the best basis upon which to analyze portfolios...' (p. 4) and ...'[p]ortfolio selection should be based on *reasonable beliefs* about future rather than past performances per se' (Markowitz, 1959: 14, emphasis added).

Markowitz's portfolio theory addressed the issue of purposeful and effective portfolio diversification which had been omitted from Williams' earlier treatment (which implied that adequate portfolio diversification could be achieved by holding a large number of securities with maximum present value): Markowitz described this approach as "unconvincing" (Markowitz, 1991: 382) because it ignored the importance of security covariances within portfolios: '[t]his presumption, that the law of large numbers applies to a portfolio of securities, cannot be accepted. The returns from securities are too intercorrelated...' (Markowitz, 1952: 79).

Markowitz's paradigm asserted that investors should base their portfolio decisions by viewing securities not solely in terms of their absolute prospects and chances of loss, but instead, their statistical "moments" all of which were derived from security returns: viz. the expected rate of return or *mean value* (incorporating a range of return estimates and the probability beliefs for each assigned by the analyst); risk denoted by *variance* or *standard deviation*) implied in the dispersion of expected returns about the mean value; and, finally how stock returns would be expected to behave in relation to each other (denoted by the *correlation coefficient*).

⁴¹ Sharpe (1970) has also noted that security analysis was an art, while portfolio analyses (which produces predictions about portfolios) '...are derived entirely from predictions about securities produced [from security analysis]. No artistry is required, just computation' (p. 31).

Markowitz (1952) was the first to propose and prove that expected investor utility was defined by both gains *and* losses: investors were concerned with risk *and* return, and *ceteris paribus*, investors wished to minimise risk. Portfolio theory, explicitly considered the return/risk trade-off of individual securities, and used a systematic process to invest in a combination of securities which were expected to derive the highest return with the least uncertainty of those returns (hence the term “mean-variance” optimisation). Using this process, Markowitz showed that a portfolio could be constructed to yield a higher return with lower risk than that suggested by the sum of its parts. Further, in a direct contrast to the primacy of capital protection typified by the intrinsic value paradigm, Markowitz proved that portfolio risk could actually be *reduced* with the addition of high-risk stocks, provided that their returns were negatively correlated to remainder of assets in the portfolio.

Markowitz’s portfolio theory relied upon logical probability. To summarise the past, outcomes were assigned weights on the basis of the *relative frequency* of occurrence. If provided with a reasonably large population of historical data (which were normally distributed) it was considered reasonable to make inferences made about the system or process that created the data. To predict the future, it assigned weights to possible outcomes according to their *probabilities* of occurrence.⁴² For the purposes of the “portfolio analysis” and “portfolio selection” problems, the mean-variance optimisation process considered the individual characteristics of each security (whether based upon analyst inputs or historical averages) and provided a systematic and objective approach to portfolio construction. The covariance analysis used a “pairs” approach: it considered the variance of securities assuming they were combined in *equal* parts into a portfolio. The

⁴² Markowitz was well aware of his theory’s reliance upon probability beliefs which were consistent with normative principles, but intimated that investors’ actions, although carefully considered, could be subjective (see footnote 7, Markowitz, 1952: 81)

number of inputs and the complexity of computations (and expensive computing time) it required, however, made its implementation impractical at the time.⁴³

The paradigm's principal exemplar was the mean-variance optimisation procedure which enabled selection of "efficient portfolios" and its accompanying mathematical proofs confirmed its status as a scientific paradigm. However, as a normative model of investment decision making, it offered (and offers) no predictive capacity. Accordingly, its scientific value and practical meaning can only be judged in hindsight, applying a highly restrictive assumption that all investors employ the same model. Notwithstanding these limitations, and its prominence significance in the academic literature and applications in portfolio management, the paradigm has been succinctly summarised as '...an elaborate method of computing *future* risk if one knows *future* uncertainty...' (Taleb, 2001: 188).

4.4.3 Capital Market Theory

The development of market models in the 1960's (Sharpe, 1963, 1964; Lintner, 1965; Mossin, 1966; Treynor, 1965), greatly simplified the mean-variance optimisation process originally propounded by Markowitz (1952, 1959). Rather than employing the analytically cumbersome and impractical process of calculating covariances between *pairs* of securities, these single-index models measured the covariance of security returns relative to one factor: the "market". The principal advancement offered by this method, therefore, was analytical simplification: efficient portfolios were derived according to security relationships vis-à-vis the market, not other securities.

A principal theoretical conjecture of Sharpe's (1963, 1964) capital asset pricing model (CAPM) was that a dichotomy existed between the risks associated with the broad market and affecting all stocks (known as "market" or "systematic" risk) and risks unique to each

⁴³ For a description of the computing time required and complexity of data processing, in the 1950s and 1960s, see the appendix of Markowitz (1991) and Sharpe (1963, 1964).

firm (known as “unsystematic” or “idiosyncratic” risk). In addition to the normative assumptions of “perfect markets”⁴⁴ employed by Markowitz, the CAPM assumed that the “market” was a mean-variance efficient portfolio, and that security market risk relationships could be approximated linearly. However, other than assuming that no combination of risky securities could provide a riskless portfolio, no assumptions were made about the covariance matrix which described the relationship between these two values (meaning that multiple or scenario models of covariance would be consistent).⁴⁵

Sharpe (1970), as Markowitz had previously, acknowledged that the simplified mean-variance optimisation process relied upon

...heroic assumptions [of normality and representativeness], whether made explicitly or not. The underlying processes (e.g., distributions) must be stable over time, and the historical record must adequately reveal their essential characteristics (p. 179).

The main imports of this theoretical model were that aggressiveness and defensiveness could be quantified relative to the market (with “beta factors” describing security market risk via responsiveness to a market index), ‘[a]nd the related concept of systematic risk gives precision to the notion of *uncertainty that cannot be diversified away*’ (Sharpe, 1970: 101).

Sharpe (1970) asserted that investors would construct “efficient portfolios” which diversified away unsystematic risk with the inclusion of additional securities into the portfolio to accomplish [diminishing] diversification benefits. Citing the results of early empirical studies which had tested the performance characteristics of equally-weighted portfolios, he concluded that ‘[a] portfolio with 100 reasonably selected securities will usually be almost completely diversified; almost all of its risk will be systematic’ (p. 102) and that ‘[a] portfolio containing 15 or 20 securities may be well diversified...’ (p. 130).

⁴⁴ For a succinct statement of these assumptions, see Jensen (1972: 5).

⁴⁵ See further Markowitz (1991: 369-72).

Despite its explicit promise of predictive power as a positive asset pricing model, few early efforts directly tested the CAPM's validity. Black, Jensen and Scholes (1972) conducted cross-sectional and time-series tests of the CAPM concluding that it (and its beta factors) was an inadequate descriptor of the structure of security returns for stocks listed on the New York Stock Exchange between 1926 and 1966. Miller and Scholes (1972) outlined several potential "econometric difficulties" faced by the model which included the inadequacy "risk-free" return estimates, non-linearity in risk-return relationships, and the heteroscedasticity in the data (p. 8-9). Mayers (1972) posited that unobserved and non-marketable assets (such as "human capital") represented investors' claims on probability distributions of income, but that these were excluded from the derivation of the simplified model.

Rather than directly testing the CAPM's predictive power, a large body of related literature within this paradigm has instead examined fund performance evaluation (colloquially, known as the "active versus passive" debate). This voluminous literature (discussed in detail in chapter 6) constitutes an important and indirect form of joint test of the CAPM and the canon of market informational efficiency (formalised as the "efficient markets hypothesis" or EMH, in Fama, 1970). In contrast to the inconclusive results from directly testing the CAPM, this literature has provided important affirmatory empirical evidence of it's the CAPM's validity and efficient markets. The seminal empirical studies (Treynor, 1965; Sharp, 1966; Jensen, 1968, 1969; Treynor and Muzay, 1966) examined the performance of professional fund managers using risk-adjusted measures, and concluded that they did not possess useful private information. Samuelson (1974) and Sharpe (1991) have also provided logical arguments supporting this contention. However, the findings reported in the recent empirical literature have queried the equivocation of the earlier studies: Ippolito (1989), Elton *et al.*, (1993), Hendricks, Patel and Zeckhauser (1993), Goetzmann and Ibbotson (1994); Elton *et al.*, (1996a),

Carhart (1997) and Wermers (2000) have all found evidence of performance persistence in fund manager performance.

While early research suggested residual risk was insignificant, especially where adequately diversified, more recent studies have provided controversial evidence suggesting that idiosyncratic risk has deterministic value because it is associated with firm size and plays a significant role in explaining the variation of returns (e.g. Malkiel and Xu, 1997, 2000).

Unlike single index equilibrium models which assumed that security prices co-varied because of common factors associated with the stock market, Ross (1976) proposed a multi-factor equilibrium asset pricing model – the Arbitrage Pricing Model (APM) – as an alternative to the CAPM, relied upon many of the economic assumptions shared by Markowitz and the CAPM.⁴⁶ The APM states that the risk premium for a risky asset is a linear relation of a combination of factors. While the APM clearly presented an alternative model to the CAPM, it did not, however, prescribe the pervasive risk factors, nor provide a method for ascertaining the sensitivity of firms to the various risk factors (to derive appropriate risk premia). Therefore, it failed to inform decision-making in terms of risk-aversion for portfolio construction and asset pricing applications.

Early empirical testing of the APM provided apparently promising results regarding the identity of predictive factors (Roll and Ross, 1980; Chen, Roll and Ross, 1986), however, Fama and French (1992) found that two basic variables – firm size and the ratio of book-to-market equity – combined to explain the cross-sectional variability of returns for US stocks in the period 1963-1990, and that only weak relationships existed between security beta values and stock returns between 1941 and 1990. These findings appeared to

⁴⁶ The APT does not assume that investors seek mean-variance efficiency, but have homogenous beliefs and can borrow and lend at a riskless rate of interest.

suggest that fundamental measures of accounting performance were better descriptors of security returns than a stock market index. Fama was quoted in the *New York Times* saying ‘...beta as the sole variable explaining returns on stocks is dead’. In response, Black (1993) derided Fama and French [and other subsequent studies] noting that they did not give any theoretical reasoning for *why* a relationship existed between these factors and return, and stating: ‘[I]ack of theory is a tip off: watch out for data mining!...I think most of the results are attributable to data mining’ (p. 9).

This paradigm has delivered significant advancement in terms of analytical simplification, and provided the exemplars of the CAPM and performance evaluation literature (which are both joint tests of the EMH). This paradigm employs a positive economic methodology, is therefore clearly differentiated from Markowitz’s portfolio theory paradigm. The *meaning* of this paradigm should therefore be assessed according to its innate methodological benchmarks (i.e. predictive power). In this regard, the CAPM’s inability to demonstrate reliable predictive power indicates that the paradigm has achieved only pseudo-scientific status.

As Kuhn portended, few scientists have questioned the fundamental tenets of the CAPM, preferring instead to explore explanations for “anomalous” findings within the data and using increasingly complicated econometric testing procedures. In the conduct of normal science, scientists have apparently ignored the causal relations embedded in security-index relationships, and thus, the more plausible sources of explanations which may exist for model failure. Moreover, despite the reality that the CAPM is based upon axiomatic arguments, researchers have not *proven* why the model has failed with the benefit of hindsight. The fund manager performance evaluation literature, which has relied heavily upon inductive generalisations from restricted populations, appears to have ignored the fundamental issue that these testing procedures do not reveal what information has been used by investors in making their decisions. Aside from the conflicting empirical

findings which have emerged from this research, the continued success of high profile investors (e.g. Siegel, Kroner and Clifford, 2001) has directly undermined the credibility of efficient markets. In summary, this paradigm and its two exemplars, have not delivered improved *meaning* about security pricing or financial markets: a real risk which remains is that the paradigm's pseudo-scientific methods have disguised reality and induced "synthetic" reasoning.

4.4.4 Behavioural finance

Behavioural finance is a heterodox theoretical paradigm which comprises an ever-expanding catalogue of psychological, sociological and anthropological phenomena affecting security pricing in *real world* financial markets.⁴⁷ Although the paradigm's literature has experienced rapid growth from the late 1970s, the incorporation of behavioural aspects into economic theory is not new. For example, Keynes (1936) elevated the significance of crowd behaviour and changes in *expectations* and opinion of security valuation, opining that stock markets provided the general public a venue to foresee changes in short-term security prices, rather than their long-term probable yield (p. 157-8). Von Neumann and Morgenstern (1953) also acknowledged that irrational behaviour of market participants can lead to mistakes, and therefore pricing outcomes which are not determined by rational, utility-optimising actors.

The paradigm's heterodox status is drawn by its direct challenge to orthodox theoretical precepts. The growth of the paradigm has been related specifically to intellectual disquiet arising out of the anomalies which emerged from testing of the efficient markets hypothesis and the implicit nexus between economic fundamentals and rational expectations. Shiller (2003) has noted that it '...reflects a return to reality from an

⁴⁷ This section provides a necessarily truncated survey of the burgeoning literature. For comprehensive and critical surveys, see: Shleifer (2000); Malkiel (2003); Rubinstein (2001). Shiller (2005) also provides details of paradigmatic development (including the formation of specialised journals and economic societies) and the broader rationale for "behavioural economics" as a force behind institutional innovation extending beyond financial markets.

untenable position that the rational optimizing model is the only framework for economics' (Shiller, 2005: 271). Shleifer (2000) has identified the paradigm's two foundations as being: *limits to effective arbitrage*; various factors which affect *investor sentiment* (i.e. how investors form beliefs of value, and thus, their demand for securities): he summarises the paradigm as being a study of human fallibility which can '...help generate precise predictions about the behaviour of security prices...' (p. 24).

Kahneman and Tversky's (1973, 1979) "prospect theory" provides an alternative account of choice under risk and argues that investors "frame" decisions according to their own circumstances; changes in individual's risk tolerance (and loss aversion) can be arbitrary and intuitive. Simon (1978) provided a weakened definition of rationality – "bounded rationality": noting that economics had '...largely been preoccupied with *results* of rational choice rather than the *process* of rational choice.' (p. 2): the latter being subject to the cognitive limitations of decision makers. Kahneman and Tversky (1982) showed that individual investors were selective in both the information they used for decision-making, and the decision-making processes they employed: rather than obtaining all relevant information before making an optimal decision, they relied upon rules of thumb – or "heuristics" – which induced persistence biases because investors chose selectively from history an/or over-emphasised recent events.

Early research into behavioural phenomena explored patterns in the security prices (e.g. De Bondt and Thaler, 1985) whereas subsequent studies focused more closely on the behaviours and attitudes of personal investors, security analysts, and institutional investors, respectively. Shefrin and Statman (1985) showed that individual investors were more likely to sell stocks showing gains and retain stocks showing losses. Odean (1998) confirmed this disposition persisted despite the tax benefits (from realised losses) which can be harnessed to improve economic returns. De Bondt and Thaler (1987) argued that investors' "regret avoidance" meant they demanded higher premiums for the

selection of out-of-favour stocks which required greater courage. Shefrin and Statman (2000) suggest investors use a system of “mental accounting” which explains their preference for stocks paying high cash dividends (investors perceive these as not drawing on capital) and to create portfolios of individual investments based on their perceptions of risk (i.e. “safety of capital”) rather than purposeful diversification described in Markowitz’s portfolio theory.

Barberis, Shleifer and Vishny (1998) and Daniel, Hirshleifer and Subrahmanyam (1997) provide evidence that investors’ risk perceptions change: they attribute too much of their success to their own abilities, and that their overconfidence is more pronounced in rising (rather than) falling markets. Daniel, Hirshleifer and Subrahmanyam (1997) posited that informed and uninformed investors exist: informed investors who determine stock prices are affected by overconfidence and self-attribution biases; however, uninformed investors who react to short-term momentum are not. Barber and Odean (2001) found that men exhibited overconfidence and were far more likely than women to engage in trading (considered economically sub-optimal, and a poor predictor of future performance).

De Bondt and Thaler (1990) hypothesised that recent stock price performance framed the objectivity of security analyst’s expectations, showing that high price to earnings stocks tended to underperform, while stocks which had falling earnings, rebounded strongly in later periods. Lakonishok, Shleifer and Vishny (1994) have also argued that security analysts’ forecasts extrapolated recent past performances, creating momentum effects which resulted in over and under-pricings, which continued to persist until they were recognised and price reversals subsequently occurred. La Porta (1996) reported that security analysts’ expectations were systematically overly pessimistic about low growth firms and overly optimistic about high growth firms: they hypothesized that when these expectations were not realised, the performances of low and high growth firms converged.

Shiller (1990) found the pattern of volatility in prices in relation to earnings and dividends “suggestive” of simple feedback models, and acknowledged that investing fads – despite being naïve – played a role in market bubbles (p. 61). Various studies have questioned the capacity of arbitrage to operate effectively noting the respective roles of “smart money” (informed and sophisticated participants) and “noise traders” (ignorant, uninformed individual investors): the latter are assumed to rely on trends rather than expectations of fundamentals, thereby creating variances between prices and fundamental equilibrium (Cutler, Poterba and Summers, 1990; De Long *et al.*, 1990a, 1990b; Shleifer and Vishny, 1990; Shleifer and Vishny, 1997). De Long *et al.* (1990a) noted that “smart” money had the capacity to drive prices towards fundamental values, however, the reticence of sophisticated investors to bet against the apparent irrationality of others was entirely rational and that these tendencies *amplified* – rather than dampened – the extreme and unpredictable opinions of feedback traders (De Long *et al.*, 1990b). Shleifer and Vishny (1990) argued that profit potentialities *and* the cost of funds guided arbitrageurs: since long-term arbitrage was riskier and more expensive than short-term arbitrage, greater pricing discrepancies in long-term assets would exist.

Scharfstein and Stein (1990) have attributed the “herding” behaviour amongst money managers as a response to their labour market concerns: even where they possessed substantive private information, “smart” money managers would choose to ignore it to remain competitive. They also concluded that mimicry amongst active money managers was likely to exacerbate market volatility and amplify the pricing effects of exogenous shocks. Nosfinger and Sais (1999) examined linkages between stock returns and changes in institutional ownership, finding that institutions engaged in positive feedback trading more frequently than individuals and/or that their herding has a larger impact than that of individuals, however they were unclear as to the direction of causality between return momentum and herding behaviour.

The merits of the behavioural finance paradigm have been critiqued relative to the normative economic shibboleth of market efficiency (Fama, 1998; Rubinstein, 2001; Malkiel, 2003; Shiller, 2005). Fama (1998), for example, has dismissed behavioural prescriptions as being rationalisations of empirical anomalies which have disappeared where long-term datasets are measured (i.e. under/overreactions are subject to reversals over time), or where the *measurements* which identified the apparent anomalies, are improved for modelling problems, theoretical and statistical robustness (p. 291-6). Further, his critique has acknowledged that the EMH provides a “faulty” description of price formation but also invokes a relativist requirement that an improved model be provided by detractors (Fama, 1998: 284, 291).

The growth of the behavioural finance paradigm remains assured by the capacity of researchers to explore and catalogue an increasing array of behavioural phenomena. Even where these are validated by scientific methods, however, they remain incapable of universal generalisation across all market participants (and thus, the market in aggregate). Whilst Shleifer (2000) has concluded ‘...we can reject the null hypothesis of market efficiency with more confidence than before...’ (p. 177), a unified model has eluded the paradigm to date.

Whilst the behavioural finance paradigm has undoubtedly identified *meaningful* behavioural phenomena associated with investor sentiment and the restrictions to effective arbitrage, from an *investment* perspective, it has not provided a sound basis for a reliable portfolio strategy. Additionally, it has given less attention to the practical and readily verifiable factors which can provide more complete explanations for price and volume effects. These include: the design and supply of securities and investment strategies; sources of macroeconomic demand for financial assets; the “microstructure” of financial markets; systemic changes in financial market structure; prudential investment

regulations; and the institutional environs of fiduciary finance – the investment *business*.⁴⁸ Importantly, while this paradigm has argued that financial markets do not confirm to classical economic ideology, it continues to assert that fundamental value is “decision-relevant”. Further, it does not advance an *economic rationale* for financial markets which validates investment as a rational process, nor confirming consumers’ expectations of the discipline’s scientific legitimacy.

4.4.5 Financial innovation and portfolio strategies

Whereas neoclassical economic and behavioural finance paradigms have largely taken the structure of financial markets and securities as a given, emergent streams of literature have focused on the role of financial innovation (the nexus between the *supply* of securities and the specific demands from the fund manager clientele) and the asset pricing effects arising from “scientific” portfolio investment strategies.

Miller (1986) has attributed much of financial innovation to the economic distortions arising from government interventions in the form of taxes and financial market regulation. Tufano (1988, 1989) examined financial innovation, including the role of mutual funds; in contrast to the conventional economic assumptions of perfect and frictionless markets, he argued that specialist intermediaries (including institutional investors and investment banks) were increasingly important for marketing and selling financial instruments (whose costs increased as the security’s characteristics become more esoteric/obscure). Ross (1989) has argued that institutional structures are an important endogenous factor affecting financial innovation: “translucent” (pension funds) and “transparent” (mutual funds) structures are less likely to embrace innovation given their preference for high grade investments, while “opaque” structures (such as life insurance offices and hedge funds) are more likely to invest in low grade securities but depend upon intermediaries to provide marketing and private monitoring.

⁴⁸ However, the paradigm has given attention to decisions *within* the firm regarding investment/project selection (e.g. Shleifer and Vishny, 1990; Scharfstein and Stein, 1990).

Merton (1990) has noted that the financial innovation and the ensuing benefits primarily occur in financial markets which are a small part of the total economy, however broader economic welfare was enhanced where risk-sharing occurred via intermediaries. Allen and Gale (1994) have expounded a theory of “incomplete markets” formally linking market participants and issuers within financial markets (and other diverse economic institutional systems), and focusing on risk-sharing as the impetus for innovation (to meet the disparate objectives of discrete “investor clienteles”). Their theory informs the development of financial markets, and explains how innovation (in securities and financial products) has created more complete markets which: facilitate risk-sharing; avoid imposts from government taxation and regulation; reduce transactions costs and increase liquidity; reduce agency costs for security holders; allow the capture of temporary profits; and improve responsiveness in asset prices (Allen and Gale, 1994: 37).

The development of the so-called “passive”, index-tracking strategies was a direct by-product of the active versus passive debate and associated theorising about market informational efficiency. A number of scholars (e.g. Malkiel, 1973; Samuelson, 1974) called for an index-tracking strategy which made no attempt to outperform the market. Black and Scholes (1974) documented the commercial difficulties which Wells Fargo encountered with its development of index funds in the late 1960s. Two more recent studies have exemplified the development of scientifically-informed portfolio strategies (Fernholz, 1998; Arnott, Hsu and Moore, 2005): with the benefit of hindsight, these authors have demonstrated that “fundamental indexes” (which take dividend and stock size effects into account) have provided consistently superior portfolio outcomes compared to conventional index-tracking schemes which replicated capitalisation-weighted indexes. Gastineau (2002) has advocated a “self-indexing” strategy which relies upon customised indexes to achieve the benefits of index-tracking without the

direct and implicit costs associated with active index management which is witnessed within “branded” market indexes.

The direct implications of index-tracking strategies and index re-constitution events have been examined. Shleifer (1986) first highlighted the price and volume effects for stocks included in the S&P500 Index (in the absence of new information), concluding that index-tracking strategies created downward sloping demand curves due to the price-inelasticity of their demand for stocks. Several subsequent studies of these effects in broader indexes in the US and the UK (Beneish and Whaley, 1996, 2002; Lynch and Mendenhall, 1997; Madhavan and Ming, 2003; Vespro, 2006) have documented significant symmetrical price effects for stock index additions and deletions. Other studies, using “event studies” extended over long-term horizons, have documented subsequent price reversals indicating that these effects are temporary and/or economically benign (Brealey, 2000; Malkiel and Radisich, 2001).

The emergent “market microstructure” literature which has examined price formation and discovery, and the trading costs of institutional investors, has grown explosively with the availability of data in the 1990’s. Importantly, this literature acknowledges that asset prices will not necessarily equate to expectations of fair value due to a range of “frictions”, including those contributed by the actions of specialized market makers and the management of their securities inventories (Garman, 1976). The implicit costs (or “market impacts”) of institutional trading are recognised as being economically significant compared to explicit costs of brokerage and overall portfolio returns (Keim and Madhavan, 1998; Madhavan 2000, 2002). This literature has also documented the emergence of “third dimension” markets (electronic crossing networks) which allow large institutions to bypass public markets to trade anonymously and at low cost, without affecting primary market liquidity and attendant price movements. This literature has also examined the specific implications for price discovery actions of common

investment management styles including active, passive and small capitalisation strategies (Madhavan, 2003).

This paradigm's disparate research efforts have, in aggregate, provided insights into the "scientifically informed" portfolio strategies designed specifically for institutional investors and the causal volume and price effects which they produce. Although the paradigm has not provided any predictive asset pricing models, by formally linking security supply aspects, and documenting the role of actual economic actors, it has provided enhanced *meaning* regarding price discovery and formation (compared with the traditional "black box" view of financial markets). An examination of the econometric effects of index management (including "free-float" adjustment) remains a significant omission from this literature. Index management practices are bereft of any theoretical justification; however, they have significant implications given the contemporaneous usage of indexes within academic and industry research.

4.4.6 Fiduciary institutions and pension economics

Within the literature, several studies have documented the growing trend of institutional equity ownership by fiduciary investment institutions (Del Guercio, 1996; Gompers and Metrick, 2001; Khorana, Servaes and Tufano, 2005; Fernando *et al.*, 2003), although the business and investment operations of fund managers have received belated scrutiny despite their growing economic stature. Theories of fiduciary institutions (and pension funds in particular) with a locus in agency have suggested institutional investors, by virtue of their substantial shareholdings in firms and specialist skills, can improve economic returns and performance of investee firms.⁴⁹

Lakonishok *et al.* (1992) noted the heightened potential for agency concerns within pension funds given the numerous economic agents and specialist service providers

⁴⁹ For classical agency theory, see further: Berle and Means (1932); Jensen and Meckling (1976).

appointed by pension fund trustees. The incentive structures of the burgeoning fiduciary finance industry have also attracted recent scrutiny amidst concerns that they may affect the efficiency and stability of financial markets (Committee on the Global Financial System, 2003). Several papers have documented the “tournaments of fiduciary finance” including differing performance-flow relations existing within pension and mutual fund segments, and the effects of gatekeeper endorsements: Sirri and Tufano (1998), Chevalier and Ellison (1997) have documented positive momentum between past fund performance and new funds flows. More recently, the importance of reputational intermediaries (and performance ratings) in fiduciary finance has been recognised (Khorana and Servaes, 2000; Nanda, Wang and Zheng, 2004): gatekeepers’ “star” ratings have positive “spill-over” effects which induce investors to invest in other products offered within fund families.

Against this background, recent regulatory actions and stakeholder litigation efforts have resulted in heightened scrutiny of pension fund governance and decision-making processes (Mahoney, 2004; Khorana and Servaes, 2004). The structural features of pension funds including retirement benefit design and trustee decision-making processes/portfolio behaviour have been scrutinised. Given that the essential *raison d'être* of pension funds is to finance retiree *liabilities*, the suitability of financial market indexes as an appropriate, conscious basis, for *asset* portfolio construction has received only superficial scrutiny. Gold (2001) has noted that a fundamental mismatch of purpose exists between stock market indexes (designed to provide “representative” measures of market performance): the suitability of indexes as *investments*, however, has not been subjected to legal challenge (Ali, Stapledon and Gold, 2003).

The continued fixation upon asset portfolios and relative performance in academic and industry research is particularly surprising given that ballooning corporate pension liabilities were a significant contributor to the re-adjustment of market valuations which

followed the bursting of the “dot com” bubble. Leibowitz (1986) outlined a “total liability duration” approach to asset-liability matching (ALM) whereby the asset allocation of a pension fund was determined by the structure of beneficiaries’ liabilities (not vice-versa). Subsequent papers (Black, 1989; Sharpe and Tint, 1990; Ryan 1999; Sharpe, 2002) have expanded on these fundamental concepts to enable the construction of “properly” hypothecated asset portfolios and performance measures for pension funds.

Blake (1992) noted the rapid uptake of ALM techniques (from little usage in 1988 to 30 per cent of funds using these techniques in 1990) by pension funds. He developed a normative model for portfolio behaviour under time-varying expectations, exogenous economic factors, and asset characteristics. Clark (2000) has noted that the explosive growth in pension funds since the nineteenth century as principally an Anglo-American phenomenon and attributed this growth to: “structural” (the institutional framework of antecedent retirement funding initiatives; “second-order” (post-WWII economic growth an increased workforce participation/demographic coverage); and, “third order” determinants (centralization and long-term funding of retirement liabilities which created a burgeoning system of investment assets). Of these determinants, he warns that the system of pension fund capitalism may be vulnerable to itself: ‘...institutional shareholders have fuelled an extraordinary increase in stock prices, reinforcing pension funds’ reliance upon these markets as their primary focus of investment’ (Clark, 2000: 67).

Early economic scholars (Hirschman, 1970; Drucker, 1976) noted the ascendancy of “pension fund capitalism” and the latent power possessed by institutional shareholders: they provided frameworks for dealing with performance concerns of investee firms. Despite the increased proclivity by pension fund trustees to engage in index-tracking (e.g. Porter, 1997), the recent literature (and heightened socio-political pressures) have discarded the notion of financial fiduciaries being mere “rentiers” of investment capital.

Instead, “fiduciary capitalism” and institutional shareholder activism have been advocated as means of improving the performance of investee corporations, economic systems, and the welfare of broader stakeholders (Hawley and Williams, 1997).

In the aftermath of the Enron debacle, Coffee (2004) attached considerable blame to the passivity of fund managers and called for them to be more effective “gatekeepers” of their clients’ interests. However, the available empirical evidence does not support the economic efficacy of either activism *per se* (Karpoff, 1998; Gillan and Starks, 2003; Dedman, 2002) or common corporate governance structures (Wahal, 1996; Bhagat and Black, 2002; Song and Szewczyk, 2003). Long term portfolio studies have indicated that abnormal returns accrue to “good governance” in the US (Gompers, Ishii and Metrick, 2003) but mixed results were found in the UK and the European Union (Bauer, Guenster and Otten, 2004). The ambivalence of these findings – and the existing theoretical challenge to active management, generally – indicates that the economic rationale of activism by fiduciary institutions warrants closer scrutiny. Camara (2005) has noted socio-political exigencies which can affect pension fund governance and investment portfolio decisions, and cautioned that these may undermine the discharge of fiduciary duties.

The business organisation of financial fiduciaries has received only relatively recent scrutiny in the literature. Khorana and Servaes (1999, 2000) analysed empirically the determinants of mutual fund starts, and identified factors which induced the establishment of new funds (economies of scale and scope, prior performance patterns, and, the overall level of funds under management). Massa (1998, 2003) has modelled the processes which endogenously lead to market segmentation and product proliferation in the mutual fund industry and the performance effects which are provided to other funds within the same family. Mamaysky and Spiegel (2001) have provided a model for determining the optimal number of trading strategies which can be accommodated within a fund family

assuming they employ common research signals. More recent research has focused on the linkages between the internal organisation of financial fiduciaries and the speculative bubbles in market pricing. For example, Dass, Massa and Patgiri (2005) have contended that effective performance incentives discouraged money managers from investing in bubble stocks.

Another stream of the literature related to pension funds has examined the macroeconomic effects of demographic change, pension system/benefit design, and the interactions between financial markets and the real economy. Early papers (Cutler, Poterba and Summers, 1990; Schieber and Shoven, 1994) forecasted widespread falls in asset prices resulting from the confluence of ageing populations across the OECD and liquidation of financial asset holdings entering retirement (the “life-cycle” hypothesis of consumption and savings). Poterba (1998) attempted to find linkages between demographic variables and asset returns, but found no robust relationship existed. Poterba (2001) has suggested that the integration of global capital markets and anticipatory behaviour of market participants would avert the “melt-down” of financial markets. Overall, no clear validation of this hypothesis has emerged (Poterba, 2001, 2004; Brooks, 2002) although there is some evidence that demographic changes have altered the structure of financial markets (causing relative shifts in demand in financial assets from equities to bonds) coinciding with the “baby boomer” generation entering retirement (Brooks, 2000; Davis, 2006). More recent papers, observing that the forecasts of Cutler, Poterba and Summers (1990) had not come to fruition, have analysed capital flows in Europe and emerging economies (e.g. Geanakoplos, Magill and Quinzii, 2004; Börsch-Supan, 2006). Following Poterba (2001), these authors have argued that decumulation thesis relied upon inadequate “closed models” and they have contended that cross-border capital flows have had the effect of equalizing capital returns across countries. Toporowski (2000) has provided a macroeconomic model of funds flows from the pension funds segment, considering the liability structures and funding levels of

pension schemes, and their likely effects on financial markets. This theory argues that funds flows affect markets (and not vice-versa) and resulting in “over-capitalisation” of financial securities which is detrimental to the long-run productivity of investment capital.

This paradigm, by acknowledging the ascendancy of financial fiduciaries and the growth of pension funds (which now form a pillar of the modern financial system alongside banking and insurance institutions), has improved *meaning* about these important market participants and thus financial markets overall. It has also provided an enriched understanding of actual decision-making processes and investment policy constraints faced by pension fund trustees (whose decisions are increasingly dominated by competing funds rather than liability structures/solvency concerns in the context of “public offer” schemes). Pension fund consultants, who are the gatekeepers of fiduciary finance, have been at the centre of recent industry scandals and litigation: they have largely escaped academic scrutiny to date, despite the reality that they exert significant influence over the distribution of funds within the tertiary markets of fiduciary finance, and ultimately, financial markets.

Although asset pricing has largely been treated obliquely within the paradigm as the consequence of pension funds’ portfolio decisions, there have been increasing calls from stakeholders to mobilise the institutional ownership (or “fiduciary capitalism”). This has suggested a proactive role for fiduciary institutions as effective gatekeepers of value, rather than merely being price-takers and dominant providers of liquidity. However, given the prevailing intellectual consensus about “efficient markets” and the ambiguous findings noted in the literature regarding the economic benefits from pension funds’ activism, closer scrutiny of these trends is warranted, especially in the context of corporate governance reform. Importantly, this paradigm has also directed research

efforts to assess the macroeconomic implications of government retirement policies which have effectively mandated funds flows into financial markets in many economies.

4.5 Summary and philosophical direction of thesis

From the synthesis of the literature, it is evident relatively few paradigms of investment theory have emerged within the investment discipline (as shown in table 4.1) which remains relatively immature and normative in nature. Only the capital market theory paradigm has provided positive asset pricing models offering predictive capabilities.

Table 4.1: Paradigms of investment theory

Paradigm	Methodological/ intellectual foundation	Disciplinary matrix (including exemplars)
Intrinsic value 1934-	Normative economics/ accounting and law	<ul style="list-style-type: none"> • Present value/income capitalisation • dividend discount models • “appropriate” discount rates • naïve diversification
Portfolio theory 1952-	Normative economics/ logical probability	<ul style="list-style-type: none"> • Mean variance optimisation using correlation and total portfolio risk • efficient portfolio diversification • “best guesses” of future returns • “perfect markets”, EMH
Capital market theory 1963-	Positive economics/ logical probability	<ul style="list-style-type: none"> • Predictive models (CAPM & APM) • the “systematic-unsystematic” risk dichotomy • purposeful diversification • active versus passive debate • apparent validation of “efficient markets” hypothesis and theoretical justification of investment indexation
Behavioural finance 1973-	Psychology/sociology	<ul style="list-style-type: none"> • “irrational agents” and “inefficient markets” • catalogue of phenomena incapable of universal generalisation • no unified models offering predictive capacity
Financial innovation and portfolio strategies 1986-	Microeconomics/ financial economics	<ul style="list-style-type: none"> • Incomplete markets and institutional intermediaries • security design • “scientific” portfolio strategies • “market microstructure” and impacts of institutional trading
Fiduciary institutions and pension economics 1992-	Microeconomics/ Macroeconomics/ pension economics	<ul style="list-style-type: none"> • The <i>business</i> of investment: industrial organisation of fiduciary finance • Pension fund consultants as gatekeepers within tertiary markets of fiduciary finance • Pension fund capitalism and fund managers as gatekeepers of value in financial markets • Industry incentive effects and market stability • Demographics, sectoral funds flows and asset prices • Capitalisation of financial markets versus real economy

It is notable that significant reliance has been placed upon probabilistic verification procedures and that novel modes of empirical research have been used in attempts to “mop up” anomalies (and in some cases, to attribute deterministic meaning to them):

these efforts have typically used econometric techniques of increasingly complexity, data frequency, and/or restricted investor cohorts (the latter diluting the robustness and scientific validity of the inductive generalisations). Overall, the paradigms *have* delivered knowledge about financial fiduciaries and financial markets, however, in the absence of universal generalisations or constants about asset pricing – let alone real knowledge and meaning about the complex realities observed in financial markets – the investment discipline’s scientific status remains ambiguous.

There are significant impediments which are likely to preclude *scientific revolution* occurring within the investment discipline. Academic researchers who value their research specialisation and puzzle-solving work and receive validation (rewards according to the quantum of research outputs) within a paradigm, resist acknowledgment of [the extent of] anomalies and avoid questions about the fundamental *meaning* of their research. Inertia also exists within the fiduciary finance industry: practitioners who have invoked theories and exemplars to serve their commercial prerogatives (and legitimise the investment *business*), are naturally reticent to question the intellectual foundations of the discipline. There is also evidence of self-fulfilling momentum (e.g. the “modernisation” of prudential investment standards) resulting in consensus and relative performance measurement being codified as the practical standards by which investment is judged (displacing normative assumptions and beliefs).

The various paradigms of investment theory remain in varying states of crisis, and this has undermined the scientific legitimacy of the investment discipline. In this regard, the capital market theory paradigm’s principal exemplars – the CAPM and the active versus passive debate (and the canon of efficient markets) – which remain in the unsatisfactory state of neither being universally validated or refuted, have directly undermined the scientific credibility of investment as a scholarly discipline and fed stakeholders’ rancour

about the investment industry's fees and performance. In the absence of any refutation, these exemplars remain rhetorical apologia embraced by scholars and practitioners alike.

Although the *invention* and *advancement* of alternative theories should not be judged with reference to any particular economic or methodological ideology (i.e. relativism), realistically, the exemplars of the capital market theory paradigm *must* form the natural focus of intellectual scrutiny. Further, addressing the reasons for the failures of these exemplars is a necessary prerequisite of building a sound intellectual foundation for alternative conjectures which can inform the received views or beliefs within the investment discipline (Suppe, 1977) and also to garner acceptance from the scientific community to be considered as a pre-paradigm, or as a candidate for a fully-fledged paradigm (Kuhn, 1996: 4).

The heterodox paradigms of investment theory (e.g. behavioural finance) have already shown great promise (albeit, in examples incapable of universal generalisation) in providing more meaningful research directions: they have typically involved observing actors and institutional practices, rather than attempting to “reverse engineer” relationships between variables in aggregate market data according to a neoclassical economic ideology. Despite the persuasive methodological arguments advanced by Friedman (1953), and subsequent pronouncements that the exemplars of capital market theory are “untestable” (or “faulty” because they have provided inadequate generalisations about the complex realities they seek to describe) they are eminently testable in the context of intense empiricism.

Controlled experiments are not only *feasible*, they are *essential*, because in the closer study of the data, more conclusive judgments can be made about the scientific value of the theories according to their methodological foundations. Moreover, the reality that the empirical research relies upon a limited range of *ex post* variables *should* provide

opportunities to examine *why* they have been inadequate (i.e. explain the sources of experimental anomalies and to reconcile the internal consistencies of these models) when evaluated in hindsight.

In order to make a substantive contribution to the investment discipline, this thesis follows a sequential process. First, a critical examination of the capital market paradigm's flagship exemplars, which is sensitive to the methodological principles of positive economics, is completed. These conceptual critiques do not invoke the theories and use deductive generalisations to assess scientific validity without recourse to expanded empirical observations and complex statistics. With cognisance of index management practices, chapter 5 critiques the CAPM using a condensed (or "scaled") market model which identifies the spurious outcomes which are introduced by index turnover into stock index-based models, and the misspecification of security risks engendered by these models. These generalisations can be validly "scaled up" to index models comprising larger constituent populations (i.e. market realities). An interrelated issue stemming from this observation is that the actual "market" risk contributions of index constituents can be quantified without recourse to data mining, econometric estimation techniques, or restrictive theoretical assumptions. Chapter 6 scrutinises the methodology and inductive science of the active versus passive debate: it employs a logical reduction to show that the inductive generalisations derived from this genre of empirical literature are mistaken and inadequate for their stated purpose.

Second, as a precursor to providing a conceptual approach to investment, an enhanced knowledge regarding the complex realities of tradable financial markets, the institutional structures of fiduciary finance, the investment prerogatives of market participants, and macroeconomic perspectives is developed. Knowledge pertaining to the institutional structures of fiduciary finance which potentially shape the formation of marginal opinion is particularly important. Chapters 7 and 8, therefore, explore two principal gatekeepers

of fiduciary finance: pension fund consultants and activist fund managers, respectively. Armed with this knowledge, a conceptual approach to pricing financial claims is then developed which is more attuned to the complex realities of contemporary financial markets. That is the focus of chapter 9 of this thesis.

CHAPTER 5 – A CONCEPTUAL CRITIQUE OF THE CAPITAL ASSET PRICING MODEL

5.1 Introduction

As was noted in chapter 4, Markowitz's (1952, 1959) pioneering mean-variance model transformed previously-accepted notions of judgement and diversification within the "portfolio selection" problem: it provided a "scientific" process for investment decision-making which contrasted with the intrinsic value paradigm's excessive reliance upon subjective/arbitrary estimates, which had become commercially indefensible early in the twentieth century. Subsequent positive economic applications of Markowitz's normative equilibrium model – exemplified by Sharpe's CAPM (1963, 1964, 1970) – have employed stock market indexes as proxies of mean-variance efficient "market" portfolios. Importantly, these models have not provided any theoretical advancement *per se* on the normative portfolio theory precepts advanced by Markowitz: instead, they enabled a drastic simplification of the pairs optimisation *method* and offered scholars and practitioners alike, the alluring promise of predictive capabilities for pricing risk in investment and corporate finance applications.⁵⁰

As was noted in chapter 4, the CAPM has been invalidated scientifically according to its innate methodological benchmarks: even early empirical testing of a single-index factor model found that it was unable to provide reliable *ex ante* security forecasts (Black, Jensen and Scholes, 1972).⁵¹ Despite the continuing intellectual skirmishes about its scientific validity, the CAPM endures as a principal exemplar of investment theory. For financial fiduciaries and fund managers, the imports of modern portfolio theory have been codified in common law precedents and legislation governing pension funds in major

⁵⁰ This chapter focuses specifically in the application of the CAPM in the context of investment decisions. Brealey, Myers and Allen (2003) explain the application of the model in corporate finance. In Australia, competition regulators have used the CAPM recently to estimate the cost of capital for pricing electricity and gas in highly-regulated consumer markets (Allen Consulting Group, 2002).

⁵¹ However, as discussed in chapter 6, portfolio performance evaluation models *have* provided indirect and persuasive empirical evidence that this model possesses scientific validity.

Anglo-Saxon jurisdictions such as Australia, the UK, and the US (Ali, Stapledon and Gold, 2003; Bines and Thel, 2004).

Although the CAPM's theoretical assumptions and practical limitations have been subjected to early scrutiny (e.g. Roll, 1977), the empirical literature has ignored the causal relationships embedded in these data and the index management practices which directly affect the performance characteristics of "market" models.⁵² Stock market indexes are effectively "closed systems" which comprise relatively few *ex post* variables (i.e. security size and performance). Accordingly, without invoking the CAPM's theoretical framework, its conjectures about security-market relationships can be scrutinised axiomatically. Two immediate conceptual queries therefore arise. First, since the computation of stock market indexes captures the market contribution of individual securities (index constituents), why is it necessary to rely upon a statistical process to estimate the "market" return/risk contribution of index constituents? Second, since the *ex post* performance characteristics of an index are derived from its constituents, how can "non-market" risk arise? (literally, there are no "exogenous" factors). This chapter, therefore, makes an important contribution to the literature by identifying the actual/fundamental sources of errors emanating from *within* index models and their implications for econometric methods, and thus, the CAPM's validity.

The first part of this chapter provides an overview of the existing literature which traces the development and verification of the CAPM, its principal precepts, and efforts to produce "better" betas offering improved predictive power. Recognising that the day-to-day management of indexes can create truncations between index constituents (and by extension, all securities) and the "market", the second part provides an empirical study

⁵² This chapter does not invoke the theoretical model and examines its implications of index management and construction independent of any assumptions of the theoretical model. For example, an earlier critique by Roll (1977) became mired in the "self-insulating" features (noted in chapter 4) of the positive economics methodology.

examining the performance effects emanating from index turnover. This analysis uses a unique dataset which captures the index constituent changes which occurred between January 1994 to June 2002 within the S&P/ASX50 Index – a leading institutional equity index which measures the performance of a basket of Australia’s largest and most liquid stocks.⁵³ Index turnover is revealed as an important source of statistical anomalies which has not been previously documented in the empirical literature. Further, it is deduced that these anomalies have been mistakenly accorded deterministic meaning under the CAPM’s theoretical framework (namely, to support an elemental conjecture that a dichotomy between “systematic” and “idiosyncratic” risk exists).

In light of this evidence, the third part scrutinises beta values uses a “scaled” market model – the “Closed Market Index” (CMI). Unlike “branded” stock market indexes, the is not afflicted by constituent turnover and permits direct scrutiny of security-market relationships in accordance with the original Markowitz portfolio analysis approach (which considers the *portfolio* rather than *market* risk contribution of each security). With cognizance of the *actual* performance contributions of the respective CMI constituents to this market model, the appropriateness of the CAPM’s security beta factors as meaningful proxies of security “systematic” risk is examined from two perspectives.⁵⁴ First, security betas estimated from value and equally weighted market reference indexes are compared over the analysis period. Second, a comparison is made between the *actual* proportionate risk contribution of the CMI constituents and their “standard” value-weighted security betas. By relying upon deductive generalisations derived from the scaled model employed in this chapter, it is argued that the empirical

⁵³ This index comprises the 50 largest stocks by market capitalisation and is an important equities benchmark for domestic and offshore fund managers. Its constituents are the largest domestic and multi-national stocks listed on the ASX. This index is the underlying basis of the ASX mini50 futures contract and is tracked by the streetTRACKS S&P/ASX 50 ETF (see further: Standard & Poor’s, 2004b).

⁵⁴ With cognizance of the direct linkages between security-index return contributions, this part therefore does not employ “portfolio grouping” testing procedures employed to ameliorate sampling errors (e.g. Black, Jensen and Scholes, 1972; Black, 1993).

evidence supporting the CAPM's theoretical specification of "systematic" risk is mistaken and that security betas are unreliable measures for their stated purpose.

As portended by early critical scholars who queried the CAPM's validity, conventional index models and produce spurious estimations of security-market characteristics (i.e. they are *meaningless*). Moreover, from an ontological perspective, the CAPM when evaluated in *ex post* terms is revealed as a tautology which is unable to explain anything not already observed – in direct violation of its methodological standards. Whilst the CAPM's scientific value as a predictive model of security returns has been invalidated by previous research, its usage may result in sub-optimal outcomes including promoting superfluous portfolio diversification. The final part therefore summarises the main implications for financial fiduciaries which arise from these findings.

5.2 Background and previous literature

5.2.1 Methodological constraints and considerations

At the outset, it is appropriate to recognize that efforts to critique or verify the CAPM face several philosophical and practical obstacles: these are not readily surmountable and do not necessarily affirm or dismiss the scientific validity of the model, or its underlying assumptions. First, as a positive economic theory, the verification of its predictive power (to explain linkages between investor expectations and security prices) is constrained by the fact that it can only ever be evaluated in hindsight: investors' expectations, however, are not necessarily observable. Additionally, verification efforts are effectively joint tests of both the asset pricing model used and the underlying hypothesis. The CAPM, therefore, appears to be simultaneously *unprovable* and *irrefutable*: verification attempts suggestive of the "failure" of the model's predictive power will not provide conclusive evidence about the theoretical premises tested.

Friedman's (1953) persuasive methodological arguments that a theory should not be invalidated by virtue of the unreasonableness of its assumptions (p. 11), has meant that subsequent efforts to verify the CAPM's predictive ability have been predicated upon significant assumptions about the performance characteristics of financial markets which are themselves of dubious validity.⁵⁵ Further, his assertion that the existence of "disturbing influences" (Friedman, 1953: 10, 18) in real world financial markets would, *ipso facto*, undermine a model's capacity to reliably explain performance outcomes, has lent credence to a view that controlled testing of positive economic models is impossible. It is important to note that in *ex post* terms, however, the CAPM *should* be internally consistent: i.e. empirical analyses of index models *should* explain the bulk of security-market relationships they engender, and they *can* be tested independently of the CAPM's theoretical assumptions and methodological features (including its benchmark of predictive capacity), or the inability to observe *ex ante* expectations of all market participants.

Subject to these limitations, therefore, a condensed (and closed) market model which simplifies relationships and mitigates against "extraneous" factors (which may interfere with the essential task of examining security-market relationships) is efficacious for developing inductive generalisations about the CAPM. This approach [of simplification and logical reduction] does not accord with the underlying methodology of positive economics which prioritises the acquisition of data and use of "objective" statistical methods to generate knowledge.

⁵⁵ Chan and Lakonishok (1993) have also pointed out that at least 20 years of data for stock and bond returns are required to establish at the 95% confidence level that the average return on the share market exceeds that of government bonds. Haugen (2001) has noted that the central assumption of the CAPM is that a positive linear relationship exists between security risk and return (which is reflected by security beta values). There are two conditions and either one must be satisfied. The probability distributions for returns of both individual securities and the market itself must be [approximately] normal and the relationship between investors' utility and portfolio wealth must follow a quadratic form. Further, according to the strong form of the central limit theorem, security returns are required to be uncorrelated which is not evidenced in experience. Chan and Lakonishok (1993) have also pointed out that at least 20 years of data for stock and bond returns are required to establish that the average return on the share market exceeds that of government bonds at the 95% confidence level.

Friedman (1953) argued that the testing of a substantive theory or hypotheses need not occur within an overly simplified or abstract model of reality which would represent a ‘retreat into a purely formal or tautological analysis...’ (p. 11), and contended that positive science should reveal ‘...*meaningful* (i.e., not truistic) predictions about phenomena before they are observed’ (p. 7, emphasis added).⁵⁶ Conversely, if a model cannot adequately explain security-market relationships with the benefit of known experience, this should raise questions about its scientific validity and *meaning*. With this methodological justification stated, the remainder of this section provides a truncated review of the literature which traces the development and implications of market models generally, and more specifically, the pivotal issues of beta estimation and the CAPM’s deterministic risk dichotomy.

5.2.2 Market models and early empirical testing

The development of market models in the 1960’s (Sharpe, 1963, 1964; Lintner, 1965; Mossin, 1966) greatly simplified the mean-variance optimisation process originally propounded by Markowitz (1952, 1959). Rather than employing an analytically cumbersome process of calculating covariances between pairs of securities, these models measured covariance of security returns relative to a single factor: the broad “market”. Thus, the significant analytical advancement afforded by the single-period mean-variance portfolio model was a drastic reduction in the number of inputs and computing time compared with the Markowitz “pairs” analysis, which at that time, was practically infeasible for larger portfolios.

The significance of manual processing and costly computing time was outlined in Markowitz (1959), and Sharpe (1963) also cited the substantial cost savings offered by the index-based “diagonal model” of portfolio analysis as an important advancement

⁵⁶ With regard to the potential of the CAPM being a tautology, Sharpe (1970) apparently dismisses this possibility arguing that ‘[i]n fact, the market portfolio invariably proves to be inefficient ex post. If the future could be predicted with certainty, investors would shun diversification-the optimal portfolio would contain only the security with the best (actual) performance’ (p. 85).

versus the Markowitz mean-variance optimisation method (p. 277, 284). However, it has noted subsequently that the relatively low cost and speed of modern computing technologies makes Markowitz's original mean-variance optimisation procedure economically feasible (Haugen and Baker, 1990; Haugen, 2001).

Sharpe (1963, 1964), Lintner (1965), Mossin (1966) and Treynor (1965) posited a single factor model which used the S&P500 Index as a proxy of broad market returns as a sufficient model of covariance, despite that this index did not include the returns from dividends and re-invested income (i.e. it was a price rather than total return index). As Black, Jensen and Scholes (1972) have noted, despite the widespread attention these models received in the academic literature, initial attempts to verify the model empirically were limited to performance evaluation systems for mutual funds, rather than direct tests or improvements to the specification of the CAPM.

In expounding the principal theoretical conjecture of a dichotomy between security (idiosyncratic) and market risk, Sharpe (1970) cited early empirical evidence (King, 1966; Cohen and Pogue, 1967) which had examined the cross-sectional relationships between individual stocks and the market index as attesting to the existence of a positive linear relationship.⁵⁷

Subsequent empirical testing of the single index model by Black, Jensen and Scholes (1972) which studied *portfolios* rather than individual stocks, used a more detailed two-factor CAPM (shown in equation 5.1 below) and provided affirmative evidence of a positive linear relationship existing between beta values and average rates of return.

⁵⁷ King (1966) derived the average proportion of variance attributable to market fluctuations "seasoned" according to four discrete periods between 1927 and 1960: June 1927 to September 1935 (58.4%); October 1935 to February 1944 (55.7%); March 1944 to July 1952 (41.2%); and, August 1952 to December 1960 (30.7%).

$$R_i = R_f + \alpha_i + \beta_i(R_m - R_f) + \varepsilon_i \quad (\text{Equation 5.1})$$

where:

R_i is the expected return for the security i;
 R_f is the return from riskless assets;
 α_i is a constant relating to security i;
 β_i is the beta coefficient for security i;
 R_M is the expected return for the market; and,
 ε_i is a residual error pertaining to security i.

The authors noted that they had ‘...established the presence of the beta factor in explaining security returns but, as mentioned earlier, we have not provided any direct tests aimed at explaining [its existence]’ (p. 115). Fama and MacBeth (1973) expanded the security market line to include the square of the beta coefficient using 20 portfolios between January 1935 and June 1968. Ball, Brown and Officer (1976) analysed an equally-weighted average of 651 Australian industrial stocks over the period 1958-1970 and concluded that a linear relationship existed between the expected rates of return for these stocks and the market aggregate. Roll (1979) provided early cautions regarding these empirical tests noting ‘...grouping procedures may hide important information... [they] may well support mean-variance efficiency even where it is not efficient’ (p. 148).

Despite the emergence of apparently affirmative empirical evidence, the CAPM’s predictive capacity (and security betas as valid measures of a firm’s systematic risk) soon came under renewed attack. Roll (1977) criticised index models conceptually as an oversimplification: he argued that the opportunity set represented by stock market indexes did not include the full universe of all risky assets available to investors. Accordingly, citing the incompleteness (or “misspecification”) of the available market benchmarks, he concluded that the CAPM was not testable:

The two-parameter asset pricing theory is testable in principle; but arguments are given here that: (a) no correct or unambiguous test of the theory has appeared in the literature, and (b) there is practically no possibility that such a test can be accomplished in the future (Roll, 1977: 129-30).

Further, Roll noted that the CAPM relied upon an assumption of market mean-variance efficiency and the presumption that the only relevant criteria for investors' decision making were expected returns and the dispersion of those returns. The questionable nature of these features has been confirmed by subsequent empirical studies which have found varying levels of mean-variance efficiency in both offshore and Australian equity markets (e.g. Grinold, 1992; Wood, 1991).

Other studies have focused on the pivotal role of market indexes within the CAPM (Frankfurter, Phillips and Seagle, 1976; Frankfurter and Phillips, 1979). Frankfurter, Phillips and Seagle (1976) constructed different market indexes with narrow and broad constituent populations, and used arithmetic and geometric rates of returns (and including dividends and adjustments for corporate actions excluded from Sharpe's earlier analysis). They concluded: '...[e]ven the *a priori* assumed best [value weighted] index explains only 53.2% of variation...and this puts to test the reality of the "common factor" assumption and supports arguments of misspecification already entertained in the literature' (p. 952).⁵⁸

Noting that early studies used arithmetic averages of returns, Jensen (1972) acknowledged in his testing that '...the correct definition of these returns is the continuously compounded rate...' (p. 33) but concluded '...it is evident that the data does not fit the model. Every coefficient is significantly different from its theoretical value' (p. 36). More recently, Fitzherbert (2001) has demonstrated that the use of [more appropriate] geometric – rather than arithmetic – returns produced significantly different mean rates of return. This more recent empirical evidence has undermined the fundamental assumption of linearity in the security-market relationship asserted in earlier

⁵⁸ Frankfurter (1976) advocated further research to improve market proxies arguing that "poor quality" indexes would result in superfluous diversification and economic costs.

studies (e.g. Black, Jensen and Scholes, 1972; Ball, Brown and Officer, 1976) which relied upon arithmetic (rather than geometric) compounded returns.

As shown in equation 5.1 above, under the CAPM residual variance (denoted by ϵ_i) is commonly labelled “idiosyncratic risk”, “unsystematic risk” and “extra-market” covariance, and is considered to be unrewarded and is diversifiable.⁵⁹ This variance is the statistical by-product of the regression between the returns of a security and those of the reference index. This component of a security’s total risk is considered to arise from company-specific events. Rudd and Rosenberg (1979) have described this more formally as ‘...a tendency for the prices of related assets to move together that is independent of the market as a whole’ (p. 24).

On the basis of this theoretical specification, Rosenberg (1974) used various micro-economic risk factors including industry, growth orientation, firm size, and financial risk. Elton, Gruber and Padberg (1979) also constructed multi-factor models in attempts to more accurately attribute residual variances according to extra-market influences on the assumption that residual risk was company-specific risk which was ‘...not uncorrelated but rather can be explained by industry influences or other broad economic influences’ (p. 7). Subsequent testing of these more convoluted models, however, found that the predictive capacity of single index models was no worse than the Markowitz model, and no better than multi-index models (Elton and Gruber, 1973).

Frankfurter and Phillips (1979) used Monte Carlo simulation techniques to examine the effects of random errors in estimation. They found that even large portfolios (of 760 securities) did not eliminate non-systematic risk, concluding: ‘Moral: selection bias results not only in overstatement of expectation and in under-statement of risk, but in superfluous diversification as well’ (p. 77).

⁵⁹ The APT proposed by Roll (1976) asserts that a security’s residual risk is not priced.

In direct contrast to conventional assumptions that residual risk was irrelevant, more recent research has assigned it a deterministic role. Malkiel and Xu (1997, 2000) have introduced controversial evidence suggesting that idiosyncratic risk was associated with firm size and played a significant role in explaining the variation of returns. Further, Xu and Malkiel (2003) have attributed increasing levels of idiosyncratic risk amongst stocks to the growing participation in financial markets (in terms of both stock ownership and trading volumes) of institutional investors: the authors have argued that these participants receive their research signals simultaneously and react in a more organised manner (compared with individual investors) resulting in increased responsiveness in the prices of stocks.

5.2.3 Beta estimation techniques and efforts to produce “better” betas

Despite on-going queries regarding the CAPM's validity, a large body of research literature has focused on the process of beta estimation. Brailsford, Faff and Oliver (1997) have noted that the conventional method used for estimation of an equity betas – ordinary least squares regression (OLS) – introduces significant variations in measurement of variables and assumptions including: measurement of returns; definition of the market index (including weighting scheme and breadth of the market index); length of the estimation period; length of sampling interval; and, corrections for thin trading.

Early research efforts confirmed that adjusted betas offered greater predictive power than purely historical (or “raw”) regression betas. Blume (1971) used a weighted average of individual betas and a prior distribution comprising of the betas of all firms (that is, an equity beta of one). Vasicek (1973) suggested a Bayesian method of adjusting betas using the beta estimate for an individual company, and the simple average of a group of industry peers, with the weighting in inverse proportion to the variances of the distributions from which the estimates are drawn. Klemkosky and Martin (1975) noted

Blume's earlier findings and used scaling factors for betas asserting that '...the accuracy of a simple no change extrapolative forecast could be improved' (p. 1128). More recently, Rosenberg (1985) noted that historical (or "raw") beta values are not "true" betas because they only measure the relationship between a stock and the broad market over a specific measurement window. Acknowledging that "fundamental" changes to a firm's business operations over time would alter its systematic risk, he used a Bayesian adjustment (of 0.58) to draw the extreme values to an average value.

The hypothesis that trading liquidity could impact on the frequency and speed of stock price adjustments and the underlying assets, with general result that standard OLS regression beta estimates would tend to be downward biased for thinly traded stocks and upward biased for frequently traded stocks, led to the extension of the OLS estimation methods to include lagged and leading market returns (Scholes and Williams, 1977; Dimson, 1979). Similarly, Ibbotson, Kaplan and Peterson (1997) have argued that infrequent trading with lagged price responses, cross auto-correlations and larger transaction spreads for smaller firms represented a "size effect" with conventional beta estimates being biased downward.

Hawawami (1983) modelled the length of return interval, the direction and strength of variations in beta values, and concluded that an "interval effect" existed: smaller than average betas decreased as the interval shortened while betas of larger firms increased. Beta estimates were also affected by cross-correlations: stocks of larger (smaller) than average market value had upwardly (downwardly) biased: this phenomenon was attributed to "trading frictions" amongst stocks with low trading liquidity which were expected to have lagged price responses (compared to frequently-traded stocks) according to new information discovered in the market.⁶⁰

⁶⁰ Brailsford and Josev (1997) investigated the interval effect on stocks within the Australian market, and confirmed Hawawami's evidence for US stocks: the betas for firms with market

Grundy and Malkiel (1996) examined beta estimates under different market conditions between 1968 and 1992. The authors demonstrated that using different market proxies and varying event windows (24 months up to 60 months) made little difference to the estimation of security betas, and they concluded that over this extended period, beta remained a useful risk indicator. Groenewold and Fraser (2000) investigated the stability of betas between January 1973 and June 1998 using 18 market sectors. Their experiments with 5-year rolling regressions and non-overlapping 2-year periods confirmed the instability of betas estimated using non-overlapping periods. They found that 5-year betas had smaller estimation errors than the shorter, non-overlapping periods, but that there was no evidence to support 5 years (a common heuristic): the 3-year rolling regressions provided superior estimates. Bartholdy and Peare (2001) undertook a comparison of betas regressed from stocks generated from various return intervals, return calculations, and reference indexes: the authors concluded from this research that using equally-weighted (rather than value-weighted) reference indexes with 5-years of monthly data provided the most efficient beta estimates.

Another strand of literature has explored beta estimation procedures to take into account the reality that variances on the rates of return for securities and their covariance relationships, would generally be expected to be time-varying. Engle (1982) developed autoregressive conditional heteroscedasticity (ARCH) and generalized autoregressive conditional heteroscedasticity (GARCH) models for beta estimation which used a continually updated estimate of volatility. These models presume that market volatility evolves in response to new information and observations on market characteristics in a regulated (i.e. relatively smooth) manner and use a continually-updated and statistically unbiased estimate of market return variance which is dependent upon past performance patterns and the most recent squared residual on the market return. These models have

capitalisations which were lower than the market average rose and larger capitalisation stocks fell as the interval was increased.

(not unexpectedly) captured a significant proportion of market volatility, however the empirical evidence of linearity between average returns and volatility has remained inconclusive (Bodie, Kane and Marcus, 2005: 434)

In terms of understanding the different beta values available to investors, Statman (1981) compared beta estimates for 195 stocks published by Merrill Lynch and Value Line and documented the differences which existed but did not posit reasons why these differences had occurred. Subsequently, Reilly and Wright (1988) extended Statman's analysis by using a sample of more than 1,100 securities. They calculated betas using different return intervals, rate of return calculations and reference indexes and concluded that variations between beta estimates were caused by the interval effect, and that the market value of stocks was a significant predictor of the direction and magnitude of these differences. In an effort to understand and reconcile potential variations between the "competing" beta estimates Lamb and Northington (2001) provided a guide to the various methods of beta estimation calculation used in 22 popular websites and investor resources in the US.

5.2.4 Portfolio management applications

In a portfolio management context, Rosenberg and Guy (1976) have described two specific uses of beta: portfolio construction and fund manager evaluation. Rosenberg (1977) also applies the CAPM to multi-manager portfolio structures.⁶¹ For portfolio construction purposes, this theory has applications in asset allocation (i.e. the split between virtually risk free assets such as government-backed credits and money market securities) and security selection (discriminate choices of individual securities from within the broader market portfolio) decisions. In conditions of market equilibrium, it asserts that the optimal combination of risky securities must include all securities; moreover, the proportion of each security must equal its proportionate value in the market as a whole. Investors therefore will choose a point along the capital market line

⁶¹ These fiduciary product innovations are discussed in detail in chapter 7.

constructed from risk-free assets and the market portfolio with more risk-averse investors lending money and more aggressive investors borrowing to invest in the market portfolio (Sharpe, 1970: 82).

In terms of security selection, the CAPM's primary conjecture is that in equilibrium, a positive linear relationship is expected to exist between risk and return for risky assets, and the slope of the security market line (the "beta factor" for individual assets) which denotes the expected return that can be obtained if extra risk is accepted, can alternatively be viewed as the price of risk reduction (Sharpe, 1970: 84)). Each security responds according to what (Haugen (2001) has described as the "force" of a dominant factor – the responsiveness of each security's return relative to changes in the returns of the broad market which are related to its beta.

Investors' portfolio weightings will converge to their index weighting for a mean-variance optimised portfolio. In fact, if an investor believes that there is no unique information available to them, they can (or should) adopt positions that mimic the index to generate the most efficient portfolio. To the extent that the investor believes that the market valuation is erroneous, investors can take "active" positions (that is, assume a position that is different from the market weighting) and may earn an extraordinary return, but that

...any deviant position carries with it a consequential risk: To the degree that the portfolio differs from the market portfolio, there is exposure to uncertain events that might cause the selected asset not to perform as expected (Rudd and Rosenberg, 1979: 29).

The theory offers guidance regarding optimal diversification – an important corollary of risk prediction – for portfolio construction purposes: it asserts that an investor assumes residual risk whenever its portfolio differs from the market portfolio. Since this risk is avoidable for the society as a whole, capital markets cannot provide a reward to those who hold it in aggregate. It is therefore argued that efficient diversification could be

achieved by reducing portfolio risk to that of the market (thus, establishing the theoretical rationale for index-tracking funds):

Efficient portfolios have no unsystematic risk. The converse also holds. The relevant measure of a security's risk is its volatility (i.e. its systematic risk). This portion will remain when the security is combined with others to form an efficient portfolio. The unsystematic risk is irrelevant: it will "wash out" when the security is combined with others. (Sharpe, 1970: 97)

In relation to the important issue of diversification, a number of empirical studies (Evans and Archer, 1968; Statman, 1987; de Vassal, 2001) have considered how many stocks are required to achieve "efficient" portfolio diversification assuming that residual risk is uncorrelated and irrelevant. These studies have offered contradictory findings. Whereas Evans and Archer (1968) stated their results '[r]aise doubts concerning the economic justification of increasing portfolio sizes beyond 10 or so securities...' (p. 767), Statman (1987) concluded that '...a well-diversified stock portfolio must include, at the very least, 30 stocks for a borrowing investor...' (p. 362): he found that an infinite number of stocks would result in an estimated annual standard deviation of 19.2 per cent and a 25 stock portfolio would have a standard deviation of 21.2 per cent. However, since a single stock was estimated to have a standard deviation of 49.2 per cent, almost all (over 93 per cent) of the obtainable benefits from diversification were obtained by holding 25 stocks in the portfolio.

The dramatic discrepancies in the results of these studies is significant considering that portfolio risk has been estimated assuming equal dollar amounts are held in the portfolio (i.e. equally weighted portfolios) – a practice not followed by most institutional investors.

5.3 Index constituent turnover as a source of residual errors

This part addresses the second conceptual query posited in the introduction: how can residual risk (as specified in the CAPM) arise within the confines of a market index, which, in effect, is a “closed system”? Logically, this phenomenon *must* arise from unidentified “leakage” occurring from this system.

According to the CAPM, security betas are considered as a dominant and predictive factor which should explain asset prices relative to their risk contribution to a market (or universe) of assets. In reality, market indexes are a relatively simple mathematical instrument: the performance of an index is calculated using constituent weightings and their returns. The *actual* market risk contribution of index constituents can therefore be directly attributed to these interrelated inputs when measured and evaluated exclusively in *ex post* terms.⁶² Therefore according to the CAPM’s theoretical prescription of “market” risk, beta values *should* explain *most* – if not *all* – of each index constituent’s performance contribution to the market index (i.e. its “systematic” risk), assuming that a continuous relationship exists between the index constituent and the market index.⁶³ This causal relationship is a restrictive condition which is relied upon in this part: all constituents are assumed to be continuous members of the “market” which itself is assumed to have comprised a stable population over the analysis period.⁶⁴ In this context, the attribution of residual errors to “exogenous” or “extra-market” factors (which have formed the thrust of earlier theoretical conjectures) appears to be implausible construct.

⁶² Performance and weighting changes are directly and causally interrelated: a security’s performance is a function of its value and income distributions (which are typically assumed to be reinvested when received) and the index performance number is a weighted sum of all index constituents’ performance contributions.

⁶³ In real world indexes, as discussed in the preceding part, there are frequent changes to the “market”, and the CAPM is typically used to estimate “market risk” for securities which are not index constituents.

⁶⁴ It is also possible, however, that the compilation of an index may be subject to human errors (e.g. stocks being incorrectly causing intra-month changes).

Since security returns are not changed retrospectively in published stock market indexes, it can be deduced that discrepancies arising from the econometric methods which estimated security betas (the index constituent-index relationship) must be attributable to *index turnover* (i.e. additions and deletions to the reference index) and changes in the constituents' *index weighting* which have created discontinuities/truncations in security-market relationships. Within the extant literature, none of the efforts to provide better betas or to verify the CAPM have explicitly taken the “intra-model” effects of index constituent turnover into consideration, even though they directly impact upon index constituent-index relationships and thus exacerbate errors arising from statistical regressions and associated descriptive data. Without making adjustment for the practical reality of index management and resultant constituent turnover, it is not surprising that beta values do not appropriately reflect the actual systematic performance contribution of securities over time. This realization should also serve to undermine confidence that security betas can offer predictive/deterministic capabilities (and thus, the CAPM's essential scientific value).

In this part, therefore, index constituent changes and the resultant data truncations which occurred within the ASX50 Index (a representative basket of Australia's largest and most liquid stocks) for the period 1 January 1994 to 30 June 2002 inclusive (the analysis period) are examined. Although this index comprises a relatively small number of stocks, the data describes 72.9 per cent of the Australian stock market's total capitalisation, and thus, it can be considered as being “representative” of the returns from this asset class over the analysis period.⁶⁵

⁶⁵ By comparison, the ASX50 Index represented 78.5% and 67.3% of the total market capitalisation of all issues traded on the ASX (including offshore issuers and other securities not included in indexes) at the start and end of the analysis period, respectively.

5.3.1 A description of index events and resultant constituent turnover

By way of background, an explanation of index management events is required. Index publishers which aim to measure the performance characteristics of financial markets are subject to the sometimes competing objectives of representation, investability, and minimization of constituent turnover. Changes to index constituents, and to a lesser degree, alterations to the index weightings of constituents, is discouraged because these events increase the transactions costs for index funds whose portfolios are managed mechanistically using replication and partial replication techniques (as discussed in chapter 3) to replicate the relevant index. Consistently high levels of constituent turnover negate the principal economic rationale of indexing strategies as a low-cost, “unmanaged” passive investment.⁶⁶ For this reason, index publishers generally maintain some discretion with regard to inclusion/exclusion criteria, and use “buffer zones” to mitigate against excessive turnover which would otherwise ensue from day-to-day events (primarily, volatility in security valuations which could otherwise trigger index inclusion/exclusion).

Indexes, therefore, even where they are carefully managed to minimize turnover, are not the “buy-and-hold” investment strategies which would be familiar to many investors. Although index-tracking strategies are typically compelled to alter portfolio holdings in accordance with changes announced by index publishers, stocks may be removed from indexes but continue to trade on the market. Stocks may be de-listed from the market but retain economic value. Significant trading costs can also arise from the market impacts of constituent changes because index funds (and many funds active managers whose returns are routinely measured against market benchmarks) replicate or closely track index reconstitutions for their portfolios. The captive nature of index funds and their

⁶⁶ Note that any change to an index is in effect an “active” decision on the part of the publisher because in altering the composition of the index (even if it accords with the stated objectives of the index) the index publisher has altered the characteristics of the data from its “raw” state (i.e. the total economic value).

insightless/price-insensitivity approach has brought opportunities for non-constrained market participants to profit from volatility and liquidity imbalances during index events. Essentially, index funds may be held to an “economic hostage” by other market participants who are able to transact in markets to pre-empt index changes. For example, arbitrageurs may purchase (sell) securities due to be included (removed) in an index prior to the “index event” date and index-tracking funds are compelled to buy (sell) “at any cost” to transition their portfolios to the revised index composition. This phenomenon has been documented within the “market microstructure” literature (discussed in chapter 4). In response to the practical concerns of clients and stakeholders, index publishers have since the late 1980’s, announced index changes publicly in advance of the actual index reconstitution events: this has had the effect of bringing forward the “volatility window” associated with these changes from the actual index event date.⁶⁷

While index publishers may alter both the constituents of an index, and their respective weightings in the index, it is important to note that these changes may be made independently of security returns. Table 5.1 below summarises the two main categories of index events and the types of modelling errors which they can potentially create. The most dramatic changes to indexes occur where there are substitutions within the constituents in the index basket, however, more subtle effects flow from constituent weighting changes which are associated with free-float assessments, corporate actions, and *ad hoc* changes to index policy made at the publisher’s prerogative.⁶⁸

⁶⁷ Prior to 1989, Standard & Poor’s announced index additions and deletions for the S&P500 index after the close of trading, and the change became effective the next day. After 1989, Standard & Poor’s has generally announced the index changes between one and five days prior to the effective date for the change. For regular quarterly rebalancing, changes are announced at least two weeks prior to the effective date.

⁶⁸ For example, if a security is sufficiently large to be ranked in the 100 largest stocks, and satisfies the industry/economy representation objective of the index, it will be included as a constituent in a “Top 100” index. Conversely, if a security’s value declines, it may be excluded from the index and replaced by a new constituent satisfying this size criterion. Under the free-float methodology, changes in the shareholdings of firms and corporate actions – rather than their returns – can result in index weighting changes. For example, if a strategic investor sells its shareholding in a firm included in the index, a free float “discount” would be removed resulting in the firm’s index value being included at full market capitalisation.

Table 5.1 – Index events and error types

Index event/change type	Specific description	Modelling impact
Constituent	Addition	Intra-model
	Deletion	
Weighting	Up weighting	Relative performance
	Down weighting	

Because beta estimation typically relies upon a regression of security returns and the reference index, *all* index events are potentially sources of statistical artefacts. However, it is the performance effects stemming from the first category (index constituent turnover) are the most important to identify, because, according to industry convention, market indexes are not “back-filled” to retrospectively include the historical performance of the new constituents, nor are the historical performance contributions of deleted constituents retrospectively removed from an index.

This “forward-looking” calculation methodology is a standard (and sound) practice because it is inappropriate to revise the historical performance record of the market. However, this methodology also introduces the potential for series of performance effects which impact upon estimates of betas and other summary statistics which are generated from comparisons between securities and the “continuing market”. Therefore, even if a firm is a continuous constituent of the “market” over an analysis period, intra-model changes will degrade the actual security-index relationships and introduce spurious statistical artefacts if explicit adjustments are not made index constituent change.

The second category of index turnover occurs from constituent weighting changes. These changes do not create errors *within* the model itself because the performance effects of weighting changes are simultaneously reflected in the index contribution of index constituents (in the calculation of the index return). However, this category of index turnover, is critically important where relative performance comparisons are made

between the economic outcomes of investor portfolios and a continually changing “market” benchmark: without adjustment for the performance effects from weighting changes, there is potential for spurious results and flawed inductive generalisations to be generated by the performance analysis process itself (discussed further in chapter 6).

5.3.2 Quantifying index constituent turnover within the ASX50 Index

The following section provides a quantification of the performance impact wrought by index constituent changes within ASX50 Index. This index provides a very relevant basis for two main reasons. First, because only the largest and most liquid stocks in the Australian equity market are included in the ASX50 Index, investigating this phenomenon within these stocks allays concerns about non-synchronous trading expressed by earlier researchers (Scholes and Williams, 1977; Dimson, 1979; Ibbotson, Kaplan and Peterson (1997)). Second, the dominance of market value as the principal criterion of index construction means that the performance characteristics of this index are highly correlated with other broader indexes (such as the S&P/ASX 100, S&P/ASX 200 and S&P/ASX All Ordinaries) making it suitable for making valid generalisations about the magnitude of this issue within the theoretical “market” of all risky assets (one of the principal aspects of the earlier critique by Roll, 1977).

5.3.2.1 Data and methodology

The data for used for this study were historical month-end snapshots of index constituents and returns of the ASX50 Index extracted from the Australian Stock Exchange’s (ASX) historical database. This database is licensed to the Securities Industry Research Cooperative of Asia-Pacific (Sirca) which manages the database and distributes the data for academic research purposes. Sirca however does not make any changes to the historical records of the database.⁶⁹ Constituent changes within this index were identified

⁶⁹ This study is an abbreviation of the actual daily index returns which form the basis of the index values which are published by the ASX; however, the veracity of this analysis was checked by comparing the geometric returns of the month-end snapshots with those of the published index which revealed immaterial differences.

by examining the actual index constituents sequentially for each month-end between January 1994 and June 2002 (for a total of 102 monthly observations): all securities deleted and added were identified (as shown in Appendix 2). The *actual* (not theoretical) total return (i.e. capital appreciation and income) contributions for each constituent to the index were isolated in each discrete month of the analysis period.

In contrast to approach outlined by Malkiel (2001) (that survivorship can be approximated by comparing constituent populations at the start and end of analysis periods) this study measures all stocks which have entered and exited the index throughout the analysis period. In order to determine an index of the “underlying” market return (rather than the “published” ASX50 Index whose returns are distorted by index management processes) the performance contributions of index constituent additions (deletions) were deleted from (added back to) the published index return. Table 5.2 reveals the annual performance effects of index turnover on the ASX50 Index throughout the analysis period, and shows how the pro forma (or underlying) market return is constructed from the data.

Table 5.2: Performance effects of constituent turnover in the ASX50 Index

The magnitude of performance effects is highly changeable (as a result of market events and reconstitutions) over the analysis period. Figure 5.1 provides a more detailed view of these effects: it shows the pattern of differential performance effects as they have

emerged in each quarter throughout the analysis period. Figure 5.2 uses data from each year to illustrate the index turnover-related performance discrepancies arising between the “published” and “underlying” market returns throughout the analysis period.

Figure 5.1: The performance effects of index turnover in the ASX50 Index

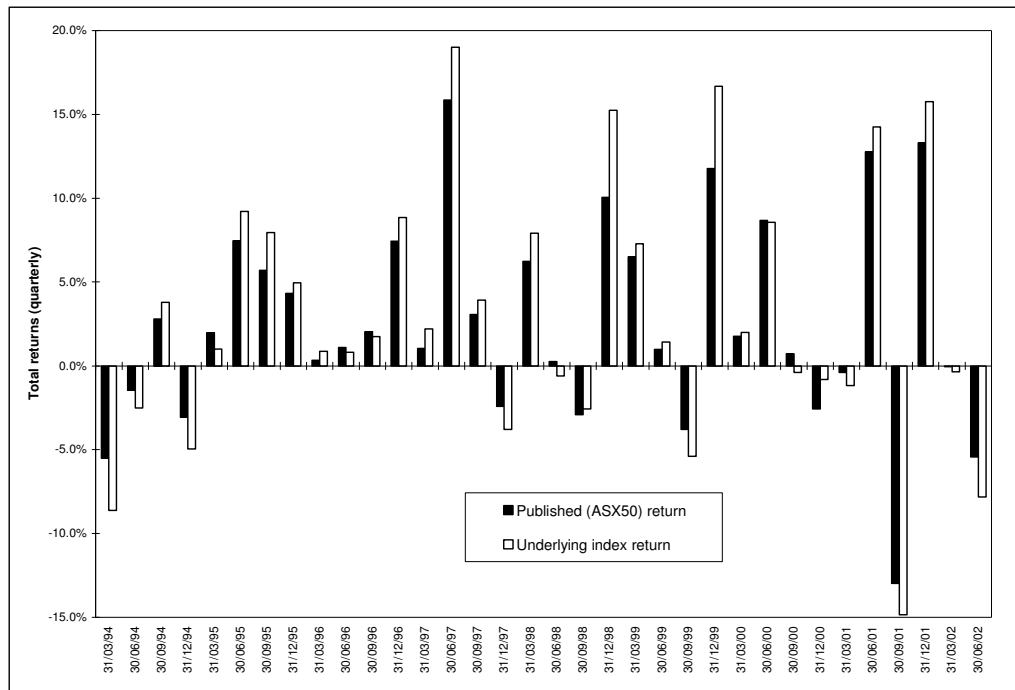
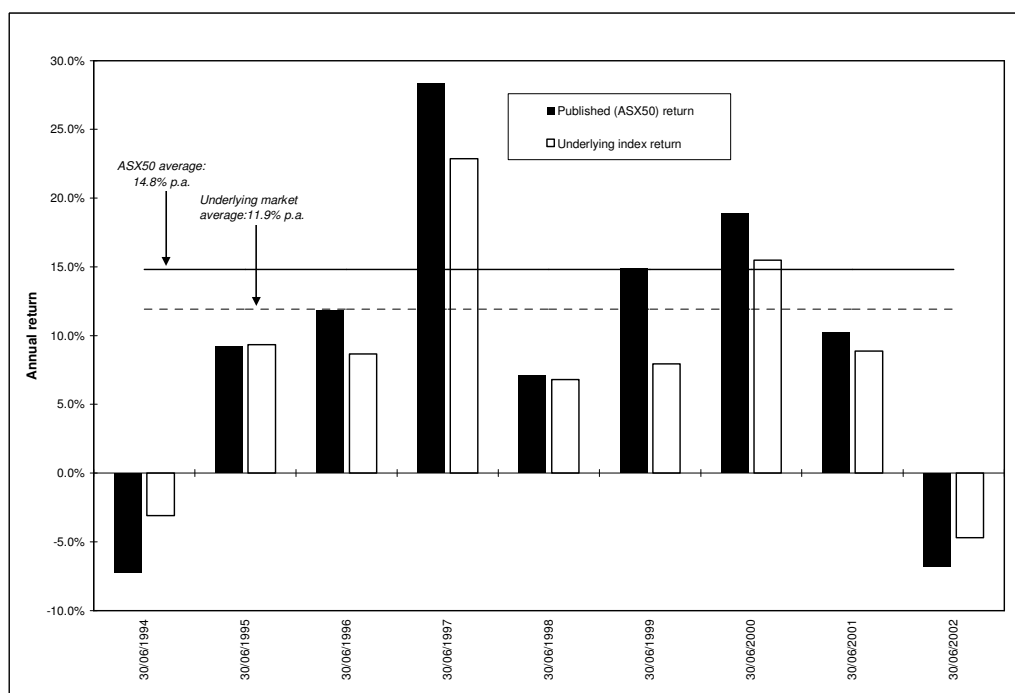


Figure 5.2: Pro forma and published index performance



In summary, it is observed that the average performance impact of index turnover was approximately 3 per cent per annum (equivalent to approximately 20 per cent of the total return from the published index) over the analysis period. If the conventional “forward-looking” calculation basis of the market index was adjusted to take into account this phenomenon, index reconstitutions (and the associated performance legacies of constituents) *per se* artificially and materially boosted the performance of the “continuing market”. Prima facie, whilst these effects appear relatively modest – especially in the context of long-run equity market returns series – the significant issue is that the *magnitude* of these performance impacts was both highly material and volatile relative to the published index returns. Inspection of these results – albeit over a relatively limited time frame contained in this study – indicates that without explicit adjustment for the performance effects of index constituent changes, econometric methods would introduce spurious associations between securities (whether or not they were index constituents) and the “market”.

5.4 An examination of systematic risk in a scaled market model

Without invoking the CAPM – but with cognisance of the performance effects of intra-model changes which are introduced within a real world index – the preceding analysis illustrated the importance of quarantining the effects of index turnover for econometric applications. The purpose of this part is to address the first conceptual query outlined in the introduction: to consider the usefulness of the CAPM’s security betas as valid descriptor of constituent-index return relationships – namely “systematic risk” – from a purely *ex post* context.

This part employs a “small” market model comprised of a fixed basket of ten large capitalisation stocks which were continuously listed on the Australian stock market index and uses an extended longitudinal study. This scaled model allows for “controlled testing” of the CAPM theoretical specification: it deliberately captures direct security-

market index relationships residing within this model without the intrusions of “disturbing influences”, and thus, enables a comparison of beta values for individual securities to be undertaken in order to make conclusions about their scientific validity. This experimental approach *embraces*, rather than shuns, the tautological features which underlie empirical testing of this theoretical genre: previous research efforts using “portfolio” grouping procedures have diligently submerged observable security-index relations.

In this part, security betas are estimated using equally-weighted and value-weighted reference indexes. The former type of reference index is considered to be a more appropriate benchmark because it captures the *ex post* characteristics of *individual* securities: as discussed in chapter 4 and the introduction of this chapter, Markowitz’s (1952) mean-variance optimisation procedure did not explicitly consider stock *size* (i.e. the market capitalisation) as a deterministic factor in the mean-variance portfolio optimisation process. Rather, it was assumed that rational investors were expected to combine securities within portfolios according to their respective *investment* potentialities when assembling efficient portfolios.

By contrast, the performance characteristics of “standard” value-weighted reference indexes (as conventionally used in academic and industry research applications) are skewed according to the respective market values of the constituents. Logically, therefore, value-weighted reference indexes may describe a security’s “market” risk contribution; however this is a misspecification of Markowitz’s scientific solution to the portfolio selection problem. At the outset, therefore, it can be observed that the “price” of the analytical simplification provided by the CAPM, has been the introduction of a subtle yet fundamental misspecification arising from the usage of value-weighted stock indexes in empirical research.

5.4.1 Data and methodology

Because a security's beta is determined by its index weighting and its returns, *ceteris paribus*, a security with a larger index weighting than other constituents *should* have a larger impact upon the market's overall risk because the market's beta is a weighted sum of individual stock betas. To evaluate security-market relationships without introducing the econometric limitations caused by index turnover (as discussed in the previous part) a model which enables direct scrutiny each security's actual index weighting and performance contributions over the long-term is necessary. Therefore, we construct a "Constant Market Index" (CMI) which comprises a fixed basket of 10 large stocks whose performance history extends longitudinally across 22 years providing 264 monthly observations between 1 January 1981 and 31 December 2002 (see Appendix 3 for details of the CMI constituents).

The constituents for the model were selected from the ASX50 Index constituents existing at the end of the analysis period. With the benefit of this "look ahead" bias, constituents were included in the CMI provided that they also existed at the start of the analysis period. This model therefore captures a representative sample of stocks which reflected historical stock market conditions experienced by stock market investors in Australia throughout a period extended more than two decades. Accordingly, no adjustments were made to individual security sizes or industry exposures (i.e. the model was computed "as is" to capture the historical realities experienced by investors over this period).⁷⁰

Although comprising a small number of constituents, the adequacy of the model's coverage (capacity to capture broad market performance characteristics) is attested by historical data regarding total market capitalisation (which incorporates all listed entities).

⁷⁰ *Ipsa facto*, drawing constituents from the ASX50 Index benefits from the "considered filtering" of the stocks. In common with the empirical study contained in chapter 8, the construction of the model has not been adjusted to maintain its historical integrity (i.e. prevailing market conditions and real-world experiences of investors have not been subject to revision).

According to historical data, the combined value of the CMI constituents over the full analysis period represented a minimum of 18.5 per cent and a maximum of 39.5 per cent respectively, of the total market value of all stocks listed on the ASX (including stocks of foreign corporations not included in the published indexes) (an average of 30.0 per cent) (RBA, 2006). Moreover, these constituents represented a minimum of 45.0 per cent of the ASX50 Index's total market capitalisation over this period (RBA, 2006).

In accordance with best practice, total returns were obtained (including all income redistributions) for each month from Datastream for the analysis period (providing a total of 264 monthly return observations). The two weighting schemes were used to construct reference market indexes: a value-weighted Constant Market Index (CMI-VW) and an equally weighted Constant Market Index (CMI-EW). The constituents of the CMI-VW were weighted according to their market values at the start of the analysis period, and in accordance with the conventional calculation practices used by publishers of branded indexes; all subsequent corporate actions/redistributions/recapitalisations were incorporated into the market capitalisation data (using the Datastream data-type "MV"). The CMI-EW used the same security returns data as the CMI-VW; however, its returns were computed by summing the total of security returns in each month and dividing them by a fixed denominator of 10 (providing an equal proportionate index weighting for each constituent of 10 per cent).

The longitudinal data was separated into four sub-periods of 5.5 years (1 January 1994 to 30 June 1998 and 1 July 1998 to 30 June 2002) allowing a more detailed analysis of inter-temporal changes in the security betas, and the performance characteristics of market model overall. Security betas were estimated from a standard OLS regression procedure utilizing the Microsoft Excel "SLOPE" function for each of the sub-periods and for the total analysis period.

Table 5.3 shows the beta values estimated using the two reference indexes in the four discrete analysis periods between 1 January 1981 and December 2002.

Table 5.3: Comparative betas for constituents of the CMI-VW model

There are two principal observations which can be made regarding these data. First, comparison of security betas estimated using the “appropriate” reference index (the CMI-EW) and the “standard” value-weighted (CMI-VW) reference indexes, revealed stark differences. In most cases, standard betas were consistently lower than their equally-weighted counterparts. The main theoretical implication of these discrepancies (according the CAPM’s specification that security betas reflect the security’s contribution to the *market’s* overall risk) is that standard betas would systematically understate the risk of those constituents if they were included in an investor’s *portfolio* in equal dollar amounts. The second observation is that over the analysis period there was significant convergence occurring between the two types of security betas over the full analysis period, and within the sub-periods. This phenomenon of convergence can be attributed to the CMI’s changing capitalisation structure over the analysis period. As noted above, the CMI was deliberately constructed to provide a representative reality of the Australian stock market. Over this period, the capitalisation structure of the broader market was highly skewed to the largest stocks (which included the CMI constituents). Figure 5.3 shows the capitalisation structure and table 5.4 provides four-firm concentration ratios

and Herfindahl indexes (a measure of concentration which gives more weighting to the largest stocks) of the CMI-VW: this index experienced moderate to high levels of concentration, and the changing relative performance of constituents (and thus index weightings) resulted in transition amongst the larger index constituents, resulting in significant convergences between the EW and VW betas.

Figure 5.3: Capitalisation structure of the CMI-VW model

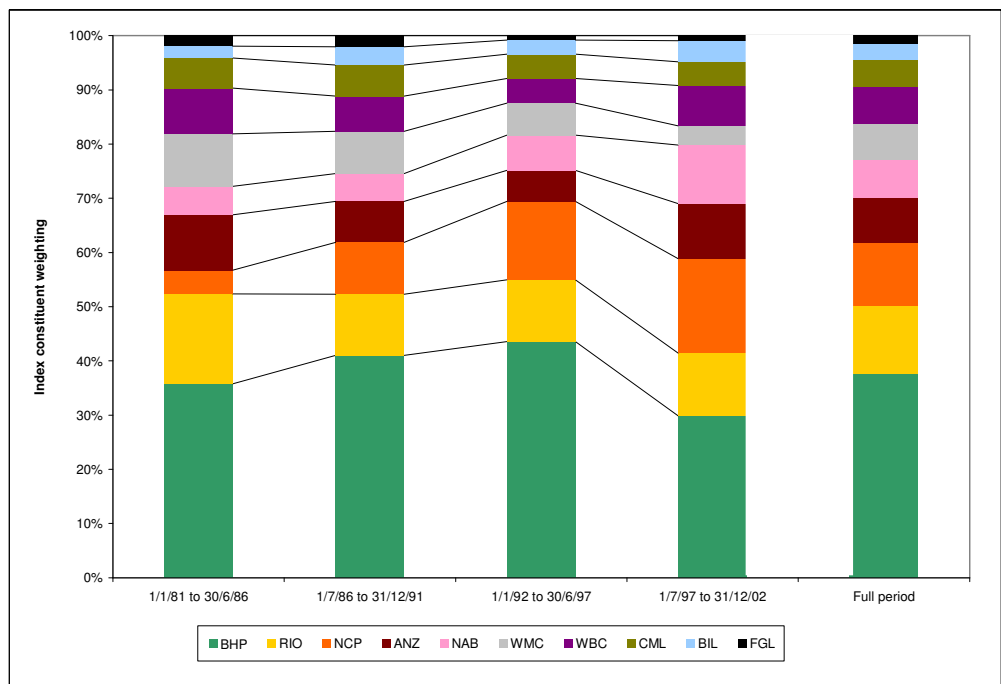


Table 5.4: Market concentration characteristics of the CMI-VW model

These data reveal that the estimation of standard beta values is affected by individual stock capitalisations, the levels of concentration in the market overall, and significant changes to the capitalisation structure occurring over the estimation period. Even though the CMI experienced moderate-high concentration levels, closer attention to the changes in market prominence (and thus performance) of individual stocks would significantly affect the sizes, and thus, beta values of the constituents.

The remaining aspect, which needs to be addressed, is whether the CAPM's beta values are appropriate proxies of "systematic" risk (i.e. according to the model's theoretical specification). This requires an evaluation of the *actual* proportionate market risk contribution of the CMI's constituents, and the estimated security betas, which is afforded by the CMI. Figure 5.4 juxtaposes standard security betas and the actual proportionate market risk contribution of the CMI constituents; table 5.5 shows the underlying data used to construct this figure.

Figure 5.4: A comparison of actual market risk contributions and security betas

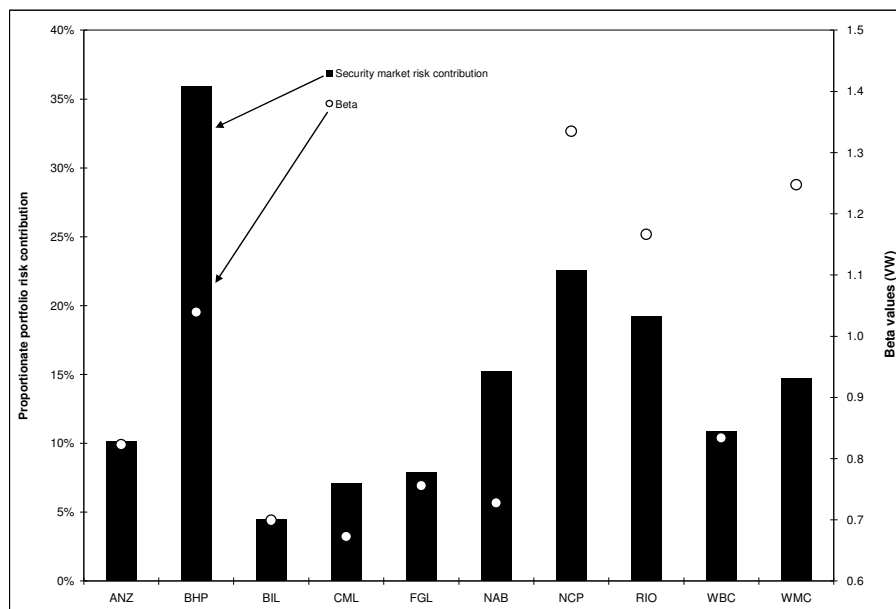


Table 5.5: Market risk contributions of the CMI-VW model constituents

On casual inspection, figure 5.4 appears to show substantial coincidences between the actual market risk contributions and security beta factors. In actuality, the CAPM is fundamentally (and formally) a tautology: tellingly, therefore, this figure reveals that econometric estimation techniques used for the CAPM actually misrepresent “systematic” risk (a mathematical analysis of the CAPM is provided in appendix 4). According to the methodology of positive economics, the CAPM’s security betas are not useful “scientific” measures because they do not express anything which cannot be observed instantaneously (and more accurately) from the index data.

5.5 Conclusions and avenues for further research

Previous critical inquiries have seemingly accepted the scientific validity of the capital market theory paradigm (and its principal exemplar, the CAPM) and its methodological underpinnings at face value. Most researchers engaged in “normal science” have not scrutinized the market proxies directly to identify and quantify the econometric implications (and actual reasons for model “failures”) arising from index-based factor models.

This chapter has examined the scientific validity and meaning of the CAPM from two related aspects. First, by acknowledging that index performance, when measured in *ex*

post terms, *should* be directly attributable to the performance and index weightings of its constituents, index turnover was documented as a mistaken source of “idiosyncratic” risk (in addition to other statistical phenomena associated with beta estimation which has been previously documented in the literature). By quantifying these effects for the first time, this analysis made a unique contribution to the existing empirical literature. Second, this chapter employed a condensed market model to evaluate the *actual* market risk contribution of constituents directly without resorting to econometric estimation methods, thus permitting the *meaning* of security betas (as specified by the CAPM) to be evaluated.

The examination of index turnover in this chapter identified intra-model errors which introduce spurious security-market associations. It provided an enhanced empirical understanding of index turnover within a relatively small index basket. It therefore represents a “pilot” study and further research is desirable to quantify these effects within broader market benchmarks (both in Australia and offshore) which, by virtue of their expanded breadth of constituents and/or selective construction rules, are likely to experience higher frequency of constituent turnover. Additionally, as noted earlier in the thesis, research should be undertaken to quantify the more subtle effects of constituent weighting changes (including free float adjustment procedures): these changes introduce “permanent” differences between the economic returns of investors’ portfolios and market benchmarks. While these errors are not accurately quantified and remain unattributed, they will continue to be mistaken as “un-priced” residual risk or as “performance anomalies” within the current theoretical and empirical literature. This research could therefore provide “true” proxies of market performance characteristics which would have greater utility for theoretical and industrial research applications.

As alluded to in the introduction, the purpose of the scaled market of the Australian stock market employed in this chapter was to evaluate the *meaning* of security betas rather than directly invoking the CAPM. To obtain a gauge of the expected *portfolio* – rather than

market – risk contribution of each security (the former being the relevant risk metric for rational investors considering the potentialities of securities in absolute terms rather than according to their index weighting), security betas were estimated using both value and equally-weighted reference indexes. A comparison of these betas revealed significant discrepancies. Security betas derived from an equally-weighted market index were typically higher than the standard betas suggesting that the CAPM generally understated constituents' systematic risk over the analysis period. A corollary of this observation is that those relying upon the CAPM and standard betas for deterministic purposes, may receive inadequate risk premia.

This model was also used to evaluate security betas in accordance with the CAPM's theoretical prescription of "systematic" risk. A comparison between the *actual* market risk contribution of securities and standard security betas revealed that the latter at best, only approximated actual historical performance relationships when index turnover and performance momentum/capitalisation were taken into account. As proxies of market risk, standard security betas did not describe anything which could not be obtained directly from the actual/historical risk contribution of the stocks. Moreover, it was shown that conventional beta estimation methods potentially obscured and distorted *actual* security-market relationships. On the basis of this direct evaluation, it can be posited that standard security beta values could not be reasonably expected to offer any predictive value (unless a highly dubious assumption was made that *ceteris paribus*, past performance is representative of the future).

Despite the "insulation" afforded by the methodology of positive economics (as outlined in the introduction), dismissing the "scientific" value of security betas (and the CAPM itself) is likely to be challenged by scholars and practitioners who have adopted the model. However, a number of significant and immediate ramifications arise. First, the CAPM's theoretical idiosyncratic-market risk dichotomy cannot be justified according to

sound principles of inductive science: concomitantly, this undermines the value of the theory as it is commonly invoked for portfolio construction and risk management purposes. Moreover, residual variance should be more accurately considered a statistical artefact rather than “security-specific” risk, and accordingly, it cannot be diversified. This realisation calls into question the previously-accepted notions of “efficient” and “purposeful” diversification (e.g. Statman, 1987). Indeed, diversification relying upon CAPM precepts may result in sub-optimal portfolio decisions and the misallocation of capital amongst issuers in financial markets.

Second, these findings have direct implications for portfolio performance evaluation systems: if beta values are not accurate proxies of “systematic” risk, then the selection and remuneration of fund managers using the CAPM (and associated ratios) may be erroneous and economically suboptimal. Third, whilst the CAPM has apparently provided important intellectual support for institutional investors to adopt “neutral” portfolio weightings for securities according to the respective index weightings (and this has been regarded as being the logical outcome of informationally-efficient and rational financial markets) these outcomes may be attributable to the previously unrecognised but underlying tautology features of the CAPM. Further, the tendency for institutional portfolios to adopt “market weight” for securities, may be a natural consequence of the fiduciary finance industry’s highly competitive microstructure and the performance evaluation systems used which manifest in a relative-performance fixation. This implied that security pricing will therefore purely be an outcome of the cash flows from portfolio investors pursuing those stocks, rather than rational, fundamental economic value.

Fourth, in the absence of compelling and valid empirical substantiation, the “scientific” rationale of index-tracking and closet indexing strategies warrants closer scrutiny. As portended by Toporowski (2000) the entrenchment of firm size as a dominant factor in portfolio construction, may create real potential for sub-optimal economic decision-

making because capital is allocated to the largest firms within the “index club” independent of their economic efficiency and the potentialities of the investments they have made in the real economy.⁷¹

Overall, when judged according to the innate methodological benchmarks of positive economics, the CAPM is pseudo-scientific because it remains a disguised tautology which does not deliver any real knowledge about the financial markets from which it is abstracted (and could otherwise be observed directly). For practical decision-making purposes, therefore, the CAPM is *meaningless*; however, to the extent that markets are self-perpetuating and are governed by relative performance (an ever-present reality), the CAPM and associated empirical literature will continue to possess the façade of a scientific theory.

Whilst this chapter has directly questioned the scientific value and practical meaning of the capital market theory paradigm, it has not challenged the fundamental normative precepts advanced by Markowitz’s portfolio theory paradigm: these remain intact. Instead, it has re-emphasised the importance of identifying valuation discrepancies in terms of fundamentals and other salient factors which can affect security pricing in supposed equilibrium, including the dynamics of fiduciary finance and the investing rules of the industry’s products. An exploration of these factors is the focus of chapter 9 of the thesis.

⁷¹ The interrelated aspects of performance evaluation systems alluded to in the second, third and fourth points are examined in chapter 6.

CHAPTER 6 – A CONCEPTUAL CRITIQUE OF THE “ACTIVE VERSUS PASSIVE” DEBATE

6.1 Introduction

Testing the merit of active investment strategies – colloquially, the “active versus passive debate” – involves measuring the returns from actively managed portfolios to confirm if the selections of funds managers have outperformed the market on average. Since Cowles’ (1933) pioneering publication, subsequent empirical studies of fund managers have questioned their ability to consistently outperform the market (and thus, add economic value). The consensus which has emerged from this voluminous empirical literature is that actively-managed portfolios are economically sub-optimal because they deliver inferior returns relative to un-managed market indexes measured in absolute or risk-adjusted terms.⁷²

Financial economists have charged that active management *must*, on average, underperform market indexes after management costs are taken into account.⁷³ Without a satisfactory “answer” to this charge, it appears that only index-tracking strategies which mimic indexes with very low operating costs have any economic justification. These arguments have achieved considerable intellectual momentum, and as a result, the economic rationale of human judgement⁷⁴ in portfolio management has been queried

⁷² For a comprehensive review of the literature, see Gallagher (2002). Australian researchers have been active contributors to the literature since the 1980s, examining the performance of fund managers within the mutual fund and pension fund segments: Bird, Chin and McCrae (1983); Robson (1986); Sinclair (1990); Hallahan and Faff (1999); Sawicki (2000); Sawicki and Ong (2000); Gallagher (2001). Their findings have been consistent with available international evidence: money managers cannot consistently add value from “timing” investment allocations into the market or choosing undervalued stocks (security selection).

⁷³ While the general consensus is that active management appears to be suboptimal, emergent literature has also confirmed that index-tracking portfolios systematically underperform market benchmarks because they incur management fees, trading costs and taxes (none of which are included in the returns of market indices) causing a systematic performance decrement (Gruber, 1996; Gallagher and Frino, 2001). Accordingly, most index funds use some form of enhancement (including trading strategies associated with index events) to achieve index or “index-plus” performance (Gastineau, 2002; Ali, Stapledon and Gold, 2003).

⁷⁴ In this context, “human judgement” relates to both deliberate and indirect actions which are inferred to arise from the fund manager’s involvement in the portfolio management process which can result in both *explicit* (fund management expenses, brokerage) and *implicit* costs (such as transaction spreads and market impacts on security prices).

within academic, practitioner and consumer spheres. The immense sums of capital entrusted to financial fiduciaries have also made confirming (or dismissing) the merits of active portfolio management more imperative. Without the spectre of this debate and its associated empirical findings, many stakeholders adopting a common-sense view would consider that active portfolio management would be *essential* given differing client constraints, market conditions, and especially since market indexes do not measure investment merit or quality. In particular, for financial fiduciaries advising clients according to their specific circumstances and beneficiary liability structures – or for that matter, any market participant which has trounced market averages – these conclusions simply do not gel with reality.

From a theoretical perspective, this literature informs and validates an important concept expressed in the theory of finance – known as “informational efficiency” – and the related belief the price discovery process in financial markets and resultant security prices reliably discount all publicly-available information. Fama (1965) has surmised: ‘...in an efficient market at any point of time the actual price of a security will be a good estimate of its intrinsic value’ (p. 34). Although the voluminous literature of this debate has lent persuasive support to the theoretical notion of informational efficiency and economic rationality, the spate of recent corporate debacles and resultant pricing dislocations in financial markets (sometimes described as “market failures”) have fostered the incredulity of stakeholders and academic researchers.

Despite these concerns, and the existence of contrary indications in the empirical literature, the burden for justifying active portfolio management has shifted firmly to the financial fiduciaries and fund managers which as promoters of high profit margin active strategies, have immediate vested commercial interests at stake. Typically, their response has been to report examples of excess risk-adjusted returns earned from active portfolios. From the outset, however, it should be noted that the debate’s empirical methodology

cannot be “disproven”: within this framework, empirical findings purportedly attesting to the superiority of active management *should also* be dismissed as being selective or unrepresentative. Overall, from the perspective of inductive science, this debate remains in an unsatisfactory state with neither the merits of active nor indexing-tracking strategies receiving universal and unequivocal validation.

This chapter makes an important contribution to the literature by undertaking a conceptual critique of (rather than an empirical addition to) the debate’s methodological aspects and experimental design. It questions the validity of the inductive generalisations which have been relied upon by scholars to validate the concept of efficient markets and to provide “scientific” justification for index-tracking strategies.

The first part of this chapter provides a contextual setting for the empiricism of the debate, showing that the portfolio performance evaluation literature coalesces within the investment discipline, and its important role in validating the theoretical notion of efficient markets. The second part “answers” the debate via a logical reduction, and this permits scrutiny and identification of the main sources of anomalies generated in this empirical literature. This part posits that findings reported in the empirical literature do not validate market efficiency (and as a consequence, directly queries the economic justification of index-tracking strategies) and do not provide useful insights regarding fund manager skill (the principal purpose of this research).

The third part highlights the practical ramifications arising from the fiduciary finance industry’s relative performance fixation for market participants and corporate issuers. The final part summarises the inadequacies of debate and outlines important questions deserving further research inquiries.

6.2 Background and previous literature

The following provides a necessarily truncated review of the literature relating to the joint tests of efficient markets: namely return predictability and performance evaluation studies. As Malkiel (1995) has noted, tests of return predictability [and the performance of professional fund managers] are joint tests of the data tested and/or the risk-adjustment procedures/asset pricing models used.⁷⁵ Findings of these joint tests – especially where they explicitly or implicitly rely upon the questionable assumptions of “perfect markets” (stated succinctly by Jensen, 1972) – may not, therefore, provide an unequivocal scientific validation regarding the notion of market efficiency. Nonetheless, the empirical literature of the debate has been particularly persuasive given the availability of standardised datasets, high frequency data, and the reasonable expectation of consumers that professional fund managers *should* possess superior information sets for decision making.

6.2.1 Empirical analyses of asset prices: a joint test

The pioneering research of Cowles (1933) is cited prominently due to its focus on American stock prices which followed the great Crash of 1932, although similar conclusions were previously reached with regard to other asset markets.⁷⁶ Samuelson (1965) and Mandelbrot (1966) posited the theoretical notion of efficient markets: if the price discovery process functioned properly within markets, a security’s market price would reflect all relevant information, and price changes *would* appear random and unforecastable, because the trading by informed investors in the markets would continuously act to exploit arbitrage opportunities which presented.

Fama (1970) reviewed the extant literature and formalised the “efficient markets hypothesis” (EMH). He separated the empirical research into three, additive categories,

⁷⁵ For literature on return predictability, see Fama, 1991; Fama and French, 1992.

⁷⁶ Earlier empirical analyses of prices (Bachelier, 1900; Working, 1934; Kendall, 1953) found that prices appeared to follow a random walk, but theoreticians and practitioners seemingly ignored these findings until the 1960s.

depending on the types of information which were assumed to be incorporated in asset prices. In the strongest form of the EMH ‘...security prices at any point in time ‘fully reflect’ all available information’ (Fama, 1970, p. 388).⁷⁷ From its original promulgation until the late 1970s, the EMH has remained a resilient proposition, notwithstanding the fact that its theoretical validity has been dependent upon several restrictive premises (in addition to the “joint test” issue). In a large body of subsequent empirical literature, “anomalous” findings have been reported suggesting that security returns were not predictable, thus implying that abnormal returns could be generated from exploiting market “inefficiencies”.

Empirical studies have examined the existence of serial correlations and the seasonality in both the US and Australian stock prices using varying evaluation periods and return intervals. For example, Lo and MacKinlay (1999) examined weekly returns in US stock prices and reported positive serial correlations (trends in successive price changes) since the mid-1980s. Brailsford and Faff (1993) also reported evidence of positive serial correlations in the daily returns of fifty actively-traded Australian shares. Jegadeesh and Titman (1993) found pronounced short-term momentum effects within individual stocks using 3 to 12 month holding periods. Over longer time frames, other researchers have found evidence of price reversals within individual stocks and portfolios selected on the basis of their prior performance (De Bondt and Thaler, 1985; Jegadeesh and Titman, 2001).⁷⁸

⁷⁷ Fama (1991) provides a further review of the literature providing three categories of empirical studies: return predictability (in the place of weak-form efficiency), event studies (semi-strong efficiency) and private information (strong-form efficiency).

⁷⁸ In particular, Haugen (2004) argues that markets are “inefficient” by drawing on literature which shows reversal effects in time series data created by overreactions of investment analysts.

The systematic relationship between stock returns and observed variables and/or trading rules, has also been examined.⁷⁹ In terms of macro-market efficiency, Fama and French (1988) found that returns were higher when dividend yields were higher: this predictability in market returns appeared to violate market efficiency. In micro-market efficiency terms, Banz (1981) stratified the market according to the capitalisation of firms and found, on average, that the annual risk-adjusted returns of “small-firm” portfolios were significantly higher than portfolios of large firms (and thus the market overall), and that most of this effect occurred in the month of January. Beedles, Dodd and Officer (1988) confirmed the existence of the small firm phenomenon in Australian stocks, but found higher returns in July and October, rather than January. Basu (1977, 1983) showed that portfolios of low price-earnings ratio stocks generated abnormal returns. Anderson, Lynch and Mathiou (1990) confirmed a weaker relationship existing amongst large Australian firms. Keim (1985) found that stocks with higher dividend yields earned abnormal returns versus others with lower, or no dividends.

Fama and French (1992) created portfolios of stocks ranked according to the ratio of book-to-market value (an indicator of the growth premiums reflected in the difference between current prices and accounting value of stockholder equity): they found that “value” stocks (those with lower investor premiums for future growth reflected in their price) underperformed their “growth” stock counterparts from mid-1963 to 1990. Faff (2001) found strong evidence of this effect in Australian stocks between 1991 and 1999. These anomalous findings of return predictability have not necessarily implied micro-market inefficiency *per se*; however, they have provided numerous challenges to the generally-accepted consensus regarding market efficiency.

⁷⁹ The following uses instances of the nascent literature for US and Australian stock markets: other studies have examined inefficiencies in global bond markets (e.g. Blake, Elton and Gruber, 1993).

Aside from expanding the empirical literature in attempts to ascertain the extent of market efficiency, other authors have expressed more fundamental reservations and conceptual concerns regarding this theory. For example, Grossman and Stiglitz (1980) noted that the theoretical foundation of the EMH relied upon a circularity of reasoning which was both paradoxical and tautological: the market would need to be inefficient otherwise informed traders could not profit from information they held, and this should remove any reason to trade at all, thus allowing inefficiencies to persist.⁸⁰ Shiller's (1981) critique of market efficiency used exponential trends calculated using the Standard & Poor's Composite Price Index and Dow Jones Industrial Average between 1871 and 1979: this highlighted statistical difficulties encountered using relatively simple models of stock valuation (assumptions of data stationarity, density of probabilities, infinite variance in price changes) and he found high kurtosis evident within this extended time series. Further, Shiller (1987) concluded

...for the aggregate stock market, the widespread impression that there is strong evidence for market efficiency may be due just to a lack of appreciation of the low power of many statistical tests (p. 37).

Marsh and Merton (1986) noted with caution that the dismissal of the EMH for the broad stock market, would undermine the distributional efficiency of financial markets which would lead to sub-optimal allocations of capital (p. 484). Lofthouse (2001) has observed that 'the [efficient market theory] is little more than spelling out the consequences of the behaviour of a competitive market [for fungible financial securities]' (p. 93). Similarly, Gold (2004) has surmised that empirical testing of fund managers' *ex post* performances has not revealed anything about transactional motivations (rational or otherwise), what information was used, or how it was synthesised (the essential purpose of the EMH and subsequent tests). Stout (2005) has noted that the common understanding of informational efficiency relates to both the *speed* with which prices react to new information (if at all), and how *accurately* these reflect fundamental value.

⁸⁰ This view of market efficiency has been confirmed by more recent and comprehensive studies (e.g. Wermers, 2000)

The emergent behavioural finance literature, whilst not disproving the original concept of efficient markets, has addressed many of the unrealistic and restrictive assumptions underlying the EMH, by illustrating the effects of investors' behavioural biases.⁸¹ Somewhat ironically, Fama (1998) reviewed the anomalies literature and concluded that many were chance results which could be attributed to methodological/statistical significance issues:

If a reasonable change in the method of estimating abnormal returns causes an anomaly to disappear, the anomaly is on shaky footing, and it is reasonable to suggest that it is an illusion (p. 303).

6.2.2 Performance evaluation of managed portfolios: a joint test

The empirical literature evaluating the performance of actively managed portfolios coalesces within the finance literature as a joint test the EMH. Bodie, Kane and Marcus (2005) have surmised

...for investors, the issue of market informational efficiency boils down to whether skilled investors can make abnormal profits. The best test is to look at the performance of market professionals to see if their performance is superior to that of a passive index fund that buys and holds the market (p. 401).

Empirical findings that the majority of mutual funds have not outperformed the market (even before management fees are deducted) has provided apparently persuasive evidence of market efficiency because they imply that the information sets available to professional managers are not superior to that of other market participants, including uninformed or “non-professional” investors. The seminal works of Treynor (1965), Sharpe (1966), Jensen (1968, 1969) and Treynor and Muzay (1966) examined the performance of professional fund managers using risk-adjusted measures.⁸² Jensen (1968), for example, concluded that professional fund managers did not possess useful private information

⁸¹ Refer to chapter 4 for an overview of the behavioural finance paradigm's literature.

⁸² Typically, three measures of risk-adjusted performance are used: the “Sharpe ratio” which measures excess return over the risk-free rate and specifies risk as the standard deviation of portfolio returns (Sharpe, 1966); the “Treynor ratio” which quantifies the reward-to-variability ratio which uses portfolio systematic risk (proxied by beta) rather than total risk as used in the Sharpe ratio (Treynor, 1965); and, Jensen's “alpha” which calculates the net differential return between portfolios and market in excess of the risk-free rate (Jensen, 1969). These three measures are only useful where an assumption is made that the CAPM is valid.

because mutual funds (after expenses) underperformed randomly-selected portfolios with equivalent risk between 1945 and 1964.⁸³ Malkiel (1995) computed the discrete annual returns from a large sample of US mutual funds between 1971 and 1991 and also found that they did not outperform the market (proxied by the S&P500) on a risk-adjusted basis. Similarly, Gruber (1996) found actively managed mutual funds delivered inferior performance after management expenses between 1985 and 1994 compared to market indexes. However, several studies have challenged these overall conclusions (Ippolito, 1989; Elton *et al.*, 1993; Wermers, 2000).⁸⁴ Hendricks, Patel and Zeckhauser (1993), Goetzmann and Ibbotson (1994), Elton, Gruber and Blake (1996a) and Carhart (1997) have found evidence of performance persistence –known as the “hot hands” phenomenon – suggesting, in contrast to the EMH, that the track record of fund managers could be a successful predictor of future performance.

Other research has disaggregated the portfolio outcomes of active fund managers cognisant of the various investment personnel and decision-making structured employed within investment firms. Treynor and Muzay (1966) adopted a non-linear model of portfolio performance analysis to account for market timing efforts by fund managers but found no evidence of consistent value-adding in their sample. More recent studies (Hendricks and Merton, 1981; Brinson, Hood and Beebower, 1986; Brinson, Singer and Beebower, 1991; Elton *et al.*, 1993; Daniel *et al.*, 1997) have controlled for the effects of portfolio investment objective, strategic asset allocation, and investment style classifications. These studies measured the performance of peer portfolios present in contemporary product markets, rather than broad (and potentially unrepresentative) market averages. Bogle (1998) examined a large sample of 741 US mutual funds using

⁸³ Similar findings were also reported in Treynor (1965) and Sharpe (1964).

⁸⁴ Ippolito (1989) surveyed mutual fund returns between 1965 and 1984 and found that fund managers did earn gross returns sufficient to justify their expenses (excluding sales fees); however Elton *et al.* (1993) subsequently argued that these results resulted from the use of inappropriate performance benchmarks. Wermers (2000) found that mutual funds on average held stocks which provided out performance of the broad market in 13 out of 20 years which was commensurate with their fees and trading expenses.

investment style product classifications: he noted at the outset (using the logic outlined in Ellis, 1975) that fund manager selection – like stock selection and market timing previously studied – was a “loser’s game” because individual fund managers could not consistently outperform the average after their costs are considered.⁸⁵

While previous research has primarily used past performance outcomes and end of period portfolio weightings, researchers have introduced changes to the design of performance evaluation methodologies to better attribute the decision-making skills and effects of fund managers. Grinblatt and Titman (1993) used a performance measurement methodology which examined the linkages between weighting changes and subsequent performance outcomes in order to assess fund manager skill. Day, Green and Plymen (1994) have proposed a portfolio performance measurement system enabling all active positions (i.e. both bought and sold) entered into by fund managers to be identified and measured individually: this system effectively re-indexes each portfolio transaction and allows the subsequent performance contributions of the decisions to be accurately monitored in the context of the portfolio’s overall return over time.

In addition to the academic research, index publishers and promoters of index funds which have a strong vested interest in examining the debate, continue to provide timeous product-focused data which seemingly validates the efficient markets hypothesis. For example, Standard & Poor’s (2005) provided a carefully compiled analysis of the performance of funds adjusted for survivorship bias, style, and asset weighting methodology, which revealed that active funds outperformed broad market and industry sector indexes in 2005; however, when an equally-weighted average was used, active funds were shown to have underperformed over the past 5 years.

⁸⁵ Bogle is the founder of Vanguard a leading US index fund management organisation. His argument emphasises the importance of the costs of active management and advocates the use of index-tracking strategies within the respective investment style and product categories.

6.2.3 The development of indexing strategies and institutional investor demand

The development of so-called “passive” or index-tracking strategies, described by Bernstein (2003) as ‘...the most glowing offspring of the efficient market hypothesis’ (p. 20) was the direct by-product of the performance evaluation debate and received the intellectual imprimatur of the investment academy. Malkiel (1973) called for ‘...a no-load, minimum management-fee mutual fund that simply buys the hundreds of stocks making up the broad stock-market averages and does no trading from security to security in an attempt to catch the winners’ (p. 226); Samuelson (1974) specifically invoked the efficient markets theory when foreshadowing the development of an unmanaged fund with low operating costs noting that ‘[t]he only honest conclusion is to agree that a loose version of the ‘efficient market’ or ‘random walk’ hypothesis accords with the ‘facts of life’’ (p. 17). Separately, Ellis (1975) convincingly argued that actively-managed institutional portfolios played a “losers game”: competing fund managers could only profit from each other’s mistakes and errors of judgement, and the costs of trading made underperformance versus un-managed indexes an inevitability.

According to Gastineau (2002) the first index-tracking strategy was created in 1971 by Wells Fargo (the predecessor organisation of Barclays Global Investors) for a single pension sponsor (Samsonite) which used an equally-weighted portfolio. In 1973, the firm created a commingled fund for clients of its trust department which tracked the Standard & Poor’s 500 Index, and in 1976, the Vanguard Group launched the first US index mutual fund (the Vanguard S&P500 Index Fund). Today, a multitude of indexes and index-tracking products exists. According to Standard & Poor’s (2006c) over US\$4.45 trillion was benchmarked to the S&P indexes at 31 December 2005 with US\$1.26 trillion indexed to the S&P 500 (this compares with US\$44 billion benchmarked in 1983).

Despite the apparently compelling economic rationale and free rider benefit offered by index funds, Gruber (1986) examined the “puzzling” behaviour of mutual fund investors

who continued to make the apparently irrational decision of buying actively managed funds: he noted the significant influences of fund manager marketing efforts, the investment advisory process, and the effects of taxation on capital gains.⁸⁶ More recently, an index investing “paradox” has emerged. Despite being apparently rational in choosing index funds, individual investors seemingly make irrational choices amongst what are commoditised products: they select funds which are relatively expensive and have sizeable performance differentials versus the market indexes (Elton, Gruber and Busse, 2004; Boldin and Cici, 2006).

In the context of prudential investment standards, the debate regarding the merit of active management has been rendered moot in various Anglo-Saxon jurisdictions (e.g. the US, UK and Australia) because the consensus of trust doctrine has long endorsed investment indexation and its attendant benefits of diversification, risk, and lower operating costs versus their active management strategies. As noted in chapter 3, the juridical acceptance of efficient markets has reversed the traditional onus imposed upon financial fiduciaries to employ active portfolio management strategies (Langbein and Posner, 1976). First, in the context of the standard of care they owe their clients, the consensus of the available research evidence indicates that active portfolios cannot reliably outperform the market average. This substantially increases the burden of proof upon financial fiduciaries and fund managers which employ judgements and generate portfolio turnover, especially when the fund manager or its affiliates receive indirect benefit from this turnover (Bines and Thel, 2004: 453). Second, given the overarching duty to maximise returns, the lower costs associated with index-tracking strategies provide an immediate and compelling economic advantage to index-tracking strategies. Notwithstanding these arguments, it is

⁸⁶ Gruber (1996) shows that these purchases are indeed rational for many personal and institutional investors, identifying two clienteles. The first clientele were described as “sophisticated” investors which recognise the persistence of fund manager skills and direct their money based on performance. The second clientele – “disadvantaged” investors – were investors influenced by marketing efforts and advice from brokers; pension plans which are restricted to offering a set of underperforming funds; and investors who are deterred from removing money from underperforming active funds due to the disadvantages imposed by taxation on capital gains.

interesting to note that a more cautionary mood has emerged in more recent scholarship. Bines and Thel (2004) have noted: '[i]ronically, and despite the dismal experience with traditional jurisprudence, modern portfolio theory – or, at least, “passive” investing – has acquired something of a normative effect in some quarters...' (p. 423) however, [prudent policy] '...enjoins against converting any theory, however *au courant* and respectable it may be, into a rule of law' (p. 424).

6.3 A conceptual critique of the debate's methodology

It can be noted that academics and industry practitioners have contributed to a voluminous body of literature. The intense empiricism embodied in the debate has *prima facie*, apparently buttressed the validity of the evidence derived from these experiments. As Keynes (1952) has noted '...almost empirical science rests on arguments based on induction and analogy' (p. 220): with regard to the specific theoretical conjecture of the debate – whether or not active portfolio management generates superior economic returns – the scientific value of this evidence hinges on the adequacy of the inductive generalisations.

6.3.1 Simplifying the debate: can anyone outperform?

The debate's scientific value can be scrutinised without recourse to lengthier data sets or even further direct observations of portfolios. Further, it can be simplified by considering the question: 'can *anyone* outperform the market'? This question was answered a long time ago by two Nobel laureates in financial economics. Samuelson (1974) stated

...what logic can demonstrate is that not everybody, nor the average person can do better than the comprehensive market averages...that would contradict the tautology that the whole is the sum of its parts' (p. 18).

Similarly, Sharpe (1991) also apparently answered the debate stating:

[b]ecause active and passive returns are equal before cost, and because active managers bear greater costs, it follows that the after-cost return of active management *must* be lower than that from passive management (p. 7).

The mathematical proofs offered by Samuelson and Sharpe appeared to confirm unequivocally that the average actively managed *dollar* will always underperform the average indexed *dollar*, after the management fees and other costs are deducted from active portfolios. The validity of these proofs for inductive purposes relies upon a principal assumption implicit in all empirical studies: that the data sampled adequately measures the return of the average *dollar* invested. This is a theoretical abstraction, however: whether contributed by academic or industry researchers, all empirical studies are derived from selective observations of various cohorts of *portfolios* which necessarily undermine the scientific value of the inductive generalisations engendered by the debate. Therefore, it is the average performance of *portfolios* rather than the theoretical *dollars* which is measured, and this creates a mistaken basis for the inductive generalisations generated by the debate (refer to appendix 5 for a mathematical analysis of this evaluation framework).

This fundamental assumption appears to have been ignored by researchers, who have focused instead on the revelations of new or contradictory phenomena from these empirical studies to posit “scientific” findings regarding anomalies and/or to develop new hypotheses about market events. These outcomes have provided the intellectual momentum which has perpetuated further empiricism; however, these efforts have not necessarily discerned meaningful and deterministic conclusions regarding the merits of active management according to sound principles of inductive science.

Within this theoretical framework, advocates of active management have typically presented the track records of “star” investors who have soundly beaten market averages as countering evidence; thus, undermining the strong versions of efficient markets (and justifying their commercial contention that active management is indeed superior). Whether relying upon Samuelson’s argumentative logic or Sharpe’s elementary

mathematics, however, there is no debate: properly measured, the active management proposition cannot be proven “scientifically” using this research methodology.

Following the empirical methodology through to its logical conclusion, therefore, findings pointing to the superiority of active management *should* be dismissed as being selective or unrepresentative, and this has been confirmed by research. For example, Samuelson (1989) reviewed an investment “hall of fame” in the late 1980s and concluded correctly that ‘[a]fter the fact, hardly ten out of ten thousand [money managers] perform in a way that convinces *an experienced student of inductive evidence* that a long-term edge over indexing is likely’ (p. 7, emphasis added).⁸⁷ Overall, the empiricism underlying this debate remains in an unsatisfactory state with neither active, nor indexing-tracking strategies, validated universally.

6.3.2 Attribution of the debate’s measurement discrepancies

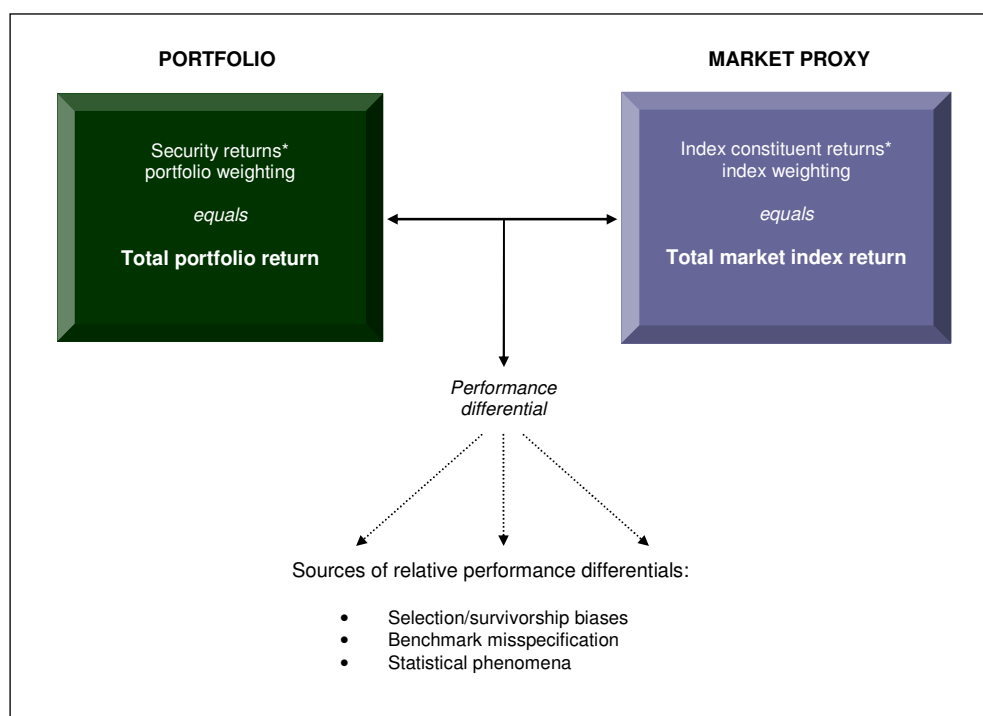
A corollary of Samuelson and Sharpe’s logic is that actively managed portfolios cannot beat a market average, however, the phenomenon of out performance is observed in both academic literature, and abounds in the promotional materials used by fund managers. Aside from intermediary costs and taxes, financial markets *are* a “zero-sum” game producing a winner and a loser from each transaction. Therefore, it can be deduced that the observed out performance of market averages by active portfolios in these experiments can be more formally described as “measurement discrepancies” which arise from the portfolio measurement process *itself* rather than being related to the characteristics of the performance outcomes. While researchers have assumed that these discrepancies represent deterministic and relevant indicators of the skills (and thus economic merits) of active fund managers, the more fundamental and immediate empirical task is to explain *how* these performance outcomes have eventuated, within a

⁸⁷ Malkiel (1995) also examined the honour roll of mutual funds which had been listed by *Forbes* magazine. He concluded that even before considering sales charges and fees, a strategy of buying these funds appeared to perform well in early years, however, over the long term, they substantially underperformed the broad market averages (i.e. an historical aberration).

“closed system” of security returns and weightings (for both market indexes and portfolios,). It is instructive to review the design of these relative performance experiments which underlie the debate because these phenomena can and should be attributed directly to a range of statistical phenomena which emanate from the data, the methodologies of the experiments, and within the product structures themselves.⁸⁸

Figure 6.1 shows schematically the two main categories of data used in these experiments. The first are portfolio returns which are usually selected according to a clientele, vintage or market segment, and may be calculated using geometric or arithmetic returns. The second category of the data are the “market” returns which are calculated using the basket of securities which are selected according to the construction rules of the index selected.

Figure 6.1: A schematic overview of fund manager performance evaluation



Under this simplified framework, *ceteris paribus*, observed out performance by actively managed portfolios must occur at the “expense” of underperforming portfolios (and vice-

⁸⁸ From an index fund (or fiduciary product) perspective, differentials can arise due to fund management costs, portfolio turnover, differences in the portfolio’s “sampled” stock basket (giving rise to tracking error), and liquidity reserves: none of these aspects affect market indexes.

versa), also invested in a market, but omitted from the portfolios surveyed. These may be the portfolios of day traders, other managed funds and offshore investors. In this scenario, if they were observed, they would be shown as underperforming the market during the measurement period. This is an oversimplification, however. More detailed attribution of these discrepancies is explored within three main groupings: selection and survivorship biases; benchmark misspecification; and, statistical phenomena in the time series data sampled.

Under the first grouping, the compilation of fund surveys used by many researchers to measure average portfolio returns can introduce a range of interrelated “selection” and “survivorship” biases. These biases are exacerbated where there is a high turnover of constituents and thus truncation of the portfolios measured within the sample.⁸⁹ Selection bias results where the compiler of the survey – typically an industry research firm – establishes the selection criteria for the sample (typically based upon investment objective). Selection bias, therefore, is typically driven by clientele issues: it is necessary for the index compiler to publish surveys which are “representative” of the performance of peer products. Because the index compiler can, at its prerogative, change the selection criteria in order to ensure representativeness, the truncations resulting from selections within the sample can distort to the true portfolio average when existing funds change their investment objectives, close or merge with others, or new funds join the segment surveyed. Selection bias may also result where fund managers act unilaterally and choose not to report the fund’s performance.⁹⁰

⁸⁹ The phenomenon of survivorship bias in studies of hedge funds has been far more pronounced. See further, Ali, Stapledon and Gold (2003:156-57). In the context of actively managed US mutual funds, Standard & Poor’s (2005) reported that 170 funds in the “general equity” and “sector” categories merged or liquidated in 2005 (equivalent to 6.8% and 5.8%, respectively, of all funds in these categories).

⁹⁰ Unless strict quality controls are imposed by the compiler, fund managers can choose to report only strongly performing portfolios and withdraw poorly performing funds from performance surveys. This practice, known as “cherry picking”, can create further truncations in the sample where the fund is reinstated into the survey after its performance subsequently improves.

Survivorship bias arises from attrition of funds from the sample over the analysis period. There are various reasons for the “disappearance” of funds; however, attrition is often strongly correlated to poor performance.⁹¹ Malkiel (1995) has noted that fund managers launch “incubator” funds and progressively remove poorly performing funds (and their performance legacies) while aggressively marketing those which perform strongly. Therefore, to the extent to which attrition stems from poor performance, the omission of these portfolios will overstate the average performance reported from the surviving portfolios. Malkiel (1995) and Elton, Gruber and Blake (1996b) have noted that most of the performance evaluation literature ignores attrition and is therefore afflicted by survivorship bias. Brown *et al.* (1992) showed using simulations that survivorship bias in samples could lead to spurious persistence in performance rankings and false inferences.

Several studies have quantified the impacts of survivorship bias in evaluation of stock and equity mutual funds finding significant overstatement effects after adjusting for risk.⁹² Therefore, for the purposes of inductive science, using returns from active portfolios unadjusted for selection and survivorship biases (from the weighting scheme used, or impacts of fees and taxes) can materially misrepresent “average” performance outcomes.

As noted in chapter 5, an important omission from the extant literature has been the identification and quantification of the selection and survivorship biases which emanate from the other datasets used in this empirical work: market indexes. Market indexes, by virtue of their construction methodologies, and market events, experience frequent

⁹¹There can be many reasons for these events, other than performance. For example, Elton, Gruber and Blake (1996b) found that from an original sample of 361 funds between 1976 and 1992, only 216 survived with 67 merging with other funds or disappearing from industry performance surveys “without explanation”.

⁹²Grinblatt and Titman (1993) estimated survivorship bias accounted for 0.1% to 0.4% per annum in risk-adjusted terms. Elton *et al.* (1993) studied bond funds and found survivorship bias to be benign. Elton, Gruber and Blake (1996b) estimate that mutual fund returns were artificially boosted by 0.3% per annum. Gruber (1996) found that non-surviving funds underperformed the market by 5.2% per annum between 1985 and 1994. Malkiel (1995) examined survivorship bias in all general equity mutual funds between 1982 and 1991 and found that the difference between the average annual return of all funds was 1.5% lower than surviving funds and almost 2% lower than the market.

truncation resulting from the periodic reconstitutions (additions and deletions). These changes are driven by the index construction methodologies which typically emphasise the inclusion of larger firms selected from industry sectors considered to be “representative” of the stock market, and having adequate “investability”. In addition to periodic reconstitutions, market indexes are directly affected by *ad hoc* constituent turnover arising from corporate actions and market events. At each change, the index compiler typically introduces a new index constituent to replace the removed one. Increased scrutiny of any inherent upward bias in market indexes is necessary because of the possibility of misrepresentation of returns for modelling purposes, and for individual stocks, the direction of causation in index constituent changes flows from the market index to investor portfolios (not vice-versa),

The second grouping for the attribution of measurement discrepancies stems from benchmark misspecification (or error). This has been a longstanding concern within the theoretical literature. Roll (1977) objected to the use of a single market index in Sharpe’s CAPM (1963, 1964) arguing that common market indexes (e.g. the S&P500) were inadequate surrogates of the opportunity set of risky assets available to investors. Others (Roll, 1978; Lehmann and Modest, 1987) have noted the sensitivity of theoretical portfolio performance evaluation measures to the choice of benchmark index as used by Jensen and Treynor.⁹³ Elton *et al.* (1993) controlled for the performance impact of non-benchmark assets using a three-factor model rather than returns from the market index, and captured the equity market premium compared with the bond market, and returns from smaller capitalisation firms excluded from the index.⁹⁴ Block and French (2002) examined the influence of portfolio weighting for 506 actively managed mutual funds and found that fund managers tended to equally-weight portfolios in various investment style

⁹³ As noted above, this countered the findings of value adding by fund managers reported by Ippolito (1989).

⁹⁴ Carhart (1997) also used a four-factor extension of the single index model creating portfolios which captured the impacts of the major anomalies identified in the literature relating to firm size, valuation and momentum effects.

categories, and that equal-weighted indexes provided better explanatory power than value-weighted market indexes (as used in most performance evaluation studies).

Measurement discrepancies arise where the market index used does not capture the aggregate return generated by all securities listed on a market, or where the capitalisation and proportionate weighting of securities in the index, differs from their respective market values. Benchmark misspecification, therefore (as discussed in chapters 3 and 5) arises from the practice of free-float adjustment which creates “permanent differences” (or truncations) between the actual returns generated by investor portfolios and the market index. Although free-float adjustment was introduced relatively recently to create more realistic performance benchmarks for institutional investors, it is a process which has the potential to introduce spurious indications regarding “out-performance” (or “underperformance”) of portfolios relative to the “market”.

The final grouping of discrepancies in the debate can be attributed to various statistical phenomena – notably serial correlations and seasonality – which have been documented in the empirical literature in the context of testing of return predictability more generally, and specifically, within performance evaluation studies. As discussed above, within the performance persistence literature, varying patterns of serial correlation have been found to exist within large samples of portfolios across differing analysis periods. Various studies (Hendricks, Patel and Zeckhauser, 1993; Goetzmann and Ibbotson, 1994; Carhart, 1997) found evidence of performance persistence (also known as the “hot hands” phenomenon) and argued that the track record of fund managers could be used as a successful predictor of their future performance.

Since many performance evaluation studies draw on observations of specific product or client segments, and commercial databases are routinely mined for the data, some cognisance of the performance measurement practices and published averages is required.

Within industry, arbitrary trailing performance periods (e.g. 1, 3 or 5 years) are commonly used for performance measurement purposes. These measurements can create date-dependency or (performance “windows”) at portfolio and/or survey levels and induce serial correlations. The use of trailing performance metrics in industry research surveys also introduces smoothing into historical returns.⁹⁵

The surveys of fund performance published within academic and practitioner circles use different weighting schemes including equal-weighting, size-weighting and medians. Brennan and Schwartz (1985) examined the effects of bias caused by weighting schemes in the context of stock portfolios, and demonstrated that the geometric mean of an equally-weighted and continually rebalanced portfolio of stocks, grew faster than value-weighted stock indexes where stock returns were stochastic. Other studies have illustrated the general pitfalls associated with data mining within tests of simulated portfolio strategies versus market indexes. For example, Canina *et al.* (1998) using the Center for Research in Security Prices database, demonstrated that using equally weighted rather than value weighted returns within stock market indices created large upward biases in reported average returns of over 6 per cent per annum between 1964 and 1993; MacQueen and Thorley (1999) also showed the pitfalls of “back-testing” simulated portfolio trading strategies based on the Dow Jones Industrial Average.

In summary, performance evaluation studies appear to provide deterministic insights: however, they cannot be relied upon to make valid inductive generalisations to justify or dismiss the merits of “judgemental” strategies. Leaving aside the joint test issue embedded in these studies, the inferences regarding fund manager skills for both market timing and security selection are of dubious value.

⁹⁵ Reliance upon these metrics may provide a direct explanation for Carhart’s (1997) finding of performance persistence at the polar extremes, and earlier findings of consistency amongst the weakest performers (e.g. Hendricks, Patel and Zeckhauser, 1993)

6.4 Implications for financial fiduciaries and corporate issuers

The main purpose of the preceding critique was to show that the debate's empirical methods and findings *per se* do not necessarily offer adequate scientific evidence or meaningful insights into skills (and thus economic merits) of fund managers, nor the sources of investment risks and potentialities. Within the confines of the debate, there have been numerous instalments and rebuttals emanating from measurement discrepancies which have reinforced the circularity of this empirical literature (e.g. Minor, 2001; Bogle, 2002). Emergent research, however, has by-passed the "performance impasse" of the debate to highlight the incontrovertible market impacts which have been created by the increasing proliferation of index-tracking schemes. These have fundamental economic ramifications, although these do not necessarily directly impinge on the *business* of financial fiduciaries and their investment activities.

Conceptually, the economic rationale for indexing is predicated upon the premise that market prices reflect fair values which are the result of analysis and trading of active (and informed) market participants. However, in practice, every transaction regardless of its motivation can affect prices. It is impossible to discriminate between informed investors, speculators, or insightful market trackers (index funds). Index-trackers transact in markets according to net portfolio cash flows and thus are primarily concerned with satisfying portfolio quotas determined by the constituents and weightings of the index tracked provide the sole motivation for trading. Shleifer (1986) first documented that index funds create downward sloping demand curves in stocks they trade because they contribute inelastic demand in index stocks, and that their transactions were unrelated to expected returns which could create disequilibrium in stock prices (compared with appraisals of "intrinsic value"). Arnott and Darnell (2003) have described passive management as '...the ultimate momentum strategy...which has '...a disproportionate investment in the largest stocks that have been most successful *in the past* and which are most expensive compared to their fundamentals *in the present*...' (p. 31).

This part therefore highlights three main strands of this literature as they apply to the fiduciary finance industry. First, the debate, in the industry guise of continuous performance measurement, has profoundly affected the incentives of active funds managers and created convergence in actively managed portfolios. Second, given the “passive” nomenclature which is typically (and mistakenly) ascribed to indexing strategies in the literature, the phenomenon of index management is examined. Finally, the effect on corporate issuers in the context of corporate governance concerns is discussed. This is particularly relevant in the context of more recent corporate debacles which have eroded the support for the EMH, if not index-tracking strategies.

6.4.1 The debate’s impact on the funds management industry

The debate has a profound bearing on the behaviour of funds managers, and thus asset pricing. Like any business, the economic imperative of fiduciary finance is *profit maximization*: as noted in chapters 2 and 3, this is primarily achieved by increasing FUM while deriving scale economies from business operations. Although offering a complex service proposition, the primary differentiation between these firms, therefore, are investment portfolio returns.

Because “gatekeepers” of fiduciary finance such as investment advisers and pension fund consultants continually measure portfolio returns relative to the market (and typically form their opinions and recommendations according to relative performance measures), funds managers must ensure that their returns remain reasonably consistent with the market and their peers. Volatile returns are hard to sell and persistently poor returns relative to the market typically generate adverse recommendations from gatekeepers, which damage sales and profitability. Conversely, strong historical performance relative to peers is generally positively correlated with net funds inflows, which in mutual funds segment are asymmetrical (Chevalier and Ellison, 1997; Sirri and Tufano, 1998).

In mutual fund markets, gatekeeper endorsements such as “star” ratings have become vitally important, and have positive “spill over” effects for fund managers who have been shown to receive funds flows where a member of the fund family achieves this recognition (Khorana and Servaes, 2000; Massa, 2003; Nanda, Wang and Zheng, 2004). Conversely, the tendency for fund managers to “window dress” their portfolios in response to reputational intermediaries and contractual incentives, has been documented in the literature (Brown, Harlow and Starks, 1996; Chevalier and Ellison, 1997)

Within the highly regulated and competitive tertiary markets of fiduciary finance, therefore, investment selections have become defined by the performance benchmarks – market indexes, and increasingly, indexes comprising peer portfolios (within fiduciary product categories). The active versus passive debate creates significant practical disincentives for fund managers to make significant portfolio judgements relative to these benchmarks.

While managers of index-tracking products explicitly track market indexes or investment style indexes, it has also become common for “active” fund managers to surreptitiously follow these benchmarks even though they are unconcerned with investment merit. This practice, known as “closet indexing”, has manifested itself in the convergence of portfolios with the market index and consequent clustering of performance outcomes observed in industry and academic literature (e.g. Myners, 2001; Blake, Lehmann and Timmerman, 2002). The prevalence and practical effects of closet indexing were highlighted in the Myner’s (2001) review of the UK institutional investment industry:

[S]etting tight limits on divergence from the index leads to distortions. Monitoring tracking error – in effect the likelihood of achieving a return different from that of the index – incentivises managers to hug their benchmark, making only small bets away from it. They may hold stocks which they believe will underperform the index but which they need to hold in order to reduce the risk of significant deviation from the performance of the index. In this situation, pension funds are paying fees for active management when its true style is becoming increasingly passive...’ (p. 10).

Further, the increasing tendency of substituting the asset composition and returns of peer fiduciary products was also noted

...it is a matter of concern that significant sums are still being managed according to peer group benchmarks. The review believes that this way of managing pension funds has no satisfactory justification (p. 56).

The pervasive effect of performance benchmarking, and the reluctance of funds managers to invest outside of the universe of securities comprising these benchmarks, has also been documented in the UK and other sophisticated fiduciary finance markets (e.g. Brealey, 2000; Committee on the Global Financial System, 2003).

6.4.2 Indexes as actively-managed instruments

In contrast to its depiction in theoretical and industry literature, indexation does not represent a “passive” strategy in the context of buy-and-hold strategies which are familiar to most investors and those used in empirical studies.⁹⁶ Indexes are actively managed instruments which are not necessarily governed by any philosophical or theoretical foundation. Index construction is sensitive to both the commercial imperatives of the compiler and market events. As noted in chapter 3, index publishers seek to ensure that they remain “representative” of the broad stock market, or industry sector, without incurring excessive constituent turnover. Thus, at its prerogative, and in response to client demands and/or, market events index publishers can alter the construction rules (and constituents) of indexes creating constituent turnover.

Table 6.1 shows the levels of constituent turnover (in terms of the number of stocks added and deleted) for the Standard & Poor’s Australian and US stock market indexes between 1 January 2000 and 31 December 2006.

⁹⁶ For example, Malkiel (1995) analyses a fixed sample of funds to calculate their annual performance.

Table 6.1: Constituent turnover in leading market indexes

In order to mitigate the effects of constituent turnover and associated transactions costs, indexes are typically rebalanced (or “reconstituted”) periodically in accordance with their construction rules. The information effect of constituent changes in market indexes has been examined with the suggestion that index inclusion itself may provide potentially powerful signals to investors about prospective earnings (Denis *et al.*, 2003), despite the specific legal notices which are provided by index publishers which explicitly disclaim *any* connotation regarding investment prospects for securities which are included/excluded from an index.

A growing body of research (Shleifer, 1986; Beneish and Whaley, 1996, 2002; Lynch and Mendenhall, 1997; Madhavan and Ming, 2003; Madhavan 2003) has documented the impacts of index reconstitutions and the direct costs of index management for investors tracking broad equity benchmarks (and thus, the resultant profit opportunities which are presented to unconstrained market participants). Other researchers have suggested that price distortions created by index events have no long-term economic impact (e.g., Malkiel and Radisich, 2001). The latter are flippant intellectual arguments which ignore the economic losses faced by investors who have paid the price of these events in cash, and sustained permanently-depressed portfolio returns from real world markets, which extend far beyond the measurement “windows” of the event studies.

The direct effects of index management have been noted in applied scholarship and financial media. Riley (2001) noted that the re-basing of the FTSE SmallCap Index in March 2000 had the effect of inflating performance by 8 per cent. In Australia, a firm-specific example was provided by Standard & Poor's decision to remove News Corporation from its Australian (S&P/ASX) indexes after it shifted its legal domicile to Delaware in 2004. Prior to its exclusion, this firm represented approximately 7 per cent of the ASX's total capitalisation, and as a result of the staged de-weighting of the stock from the Australian indexes (and addition to the S&P500), many fund managers were forced to sell down their holdings for competitive reasons, creating significant levels of portfolio turnover. The founder of News Corporation, Rupert Murdoch even suggested that shareholders had a "pretty good" case for a class action against Standard & Poor's arising from these forced transactions of hundreds of millions of dollars in News Corporation's stock at a historically low point in its price (Hopkins, 2005). Subsequently, in September 2006, Standard & Poor's announced its intention to re-include News Corporation in the S&P/ASX indexes, triggering renewed interest from domestic fund managers in its stock (Andruisiak, 2006).

Overall, this research literature has confirmed that indexes are actively managed instruments, and that index-tracking investors are potentially subjected to losses from unconstrained market participants who can pre-empt their transactions. In response to this threat, Gastineau (2002) has argued that a "self-indexing" strategy – which tracks a customised index with construction rules independent of "branded" indexes tracked by other funds with similar investment objectives – as a way to avoid the high transaction costs associated with index changes whilst preserving the practical benefits of a passive, but-and-hold strategy (in contrast to conventional index funds).

6.4.3 Portfolio indexation, corporate governance concerns and prudential constraints

While the debate presents highly stylised performance outcomes, a more fundamental issue ignored by institutional and fiduciary investors, is the mismatch which exists between the objectives of index compliers and portfolio investors (Gold, 2001). Although indexes are used as the basis of investment indexation schemes, they are not designed to be a proxy of *investment merit* or *quality*. As noted above, publishers of indexes usually explicitly disclaim that the inclusion or exclusion of individual securities from any index represents a securities recommendation, or that the index itself represents a self-contained investment strategy.

The purpose of indexes as arbitrary measures of market performance, therefore, contrasts sharply with the legal duties imposed upon financial fiduciaries (such as pension fund trustees and investment advisors). These fiduciaries are legally obligated to exercise their investment powers “prudently”: a term connoting care, caution and frugality. Since fiduciaries are prohibited from investing blindly (this arguably equates with speculation) it is surprising that the mismatch existing between the objectives of indexes and those of prudent investors attracts so little scrutiny within scholarly and professional circles.

In order to adequately discharge their fiduciary duties, therefore, Koppes and O’Reilly (1995) have suggested that financial fiduciaries which employ indexation strategies, should undertake close scrutiny of the construction methodology of the index tracked, and the characteristics of the index constituents. Further, Ali, Stapledon and Gold (2003) have noted that the prudence of index-tracking strategies has not been thoroughly examined by an Australian court to date

[n]onetheless, there is a real risk that investment fiduciaries that naively allocate funds to index-tracking strategies without understanding the nature of the index tracked, without understanding how the strategy is being implemented and without making any judgement about the quality or appropriateness of index constituents, may be taken by an Australian court to be in breach of their legal duty to exercise their investment powers prudently (p. 105-6).

Given the recent concerns which have emerged regarding standards of corporate governance and propriety, it is evident that a fundamental disconnect exists between the objectives of investors and the index-tracking portfolios: market indexes are typically compiled using market value as the principal portfolio selection criterion and conventional market indexes do not consider fundamental valuation concerns, standards of corporate governance, or other non-financial criteria. Therefore, since the market value of a firm is typically used as the primary selection criterion for most indexes, the constituents of indexed portfolio are usually the largest and most liquid firms, irrespective of their corporate governance practices.

As a consequence of the increased proclivity of indexing by institutional investors, it is possible to hypothesise that balance of power between shareholders and firm managers (and the market for corporate control generally) appears to have shifted to corporate issuers, thus, creating the potential for misallocation of capital (as portended by Marsh and Merton, 1986). Using the example of the telecommunications, media and technology bubble of 2000 in the UK, Woolley and Bird (2003) have argued that the growth in the scale of assets pursuing index-tracking strategies and closet indexing by actively managed funds, resulted in the market becoming “leveraged” to the fortunes of the largest firms.

In another example, of institutional investors being subject to “indexing inertia”, the merger of Australia’s BHP Limited and Billiton plc in 2001 (which market analysts believed offered more favourable terms to the London-based target) occurred despite the reservations of BHP’s largest institutional investors, including the Australian government’s \$10 billion pension schemes which stated “...they were unable to exercise considered judgement on the transaction” (Oldfield and Clegg, 2001: 13). In response to these concerns, some pension trustees have commenced using indexation strategies based on customised indexes and have employed specialist engagement advisors to address non-financial aspects (discussed further in chapter 8).

6.5 Conclusions and avenues for further research

The critique provided in this chapter has highlighted the misspecification of the active versus passive debate, which is as important joint test of the classical theoretical notion of efficient markets. The inability of active managers to outperform market averages has been proffered by scholars as a strong affirmation of informational efficiency: measured “properly”, however, all markets *must* be informationally-efficient *ex post*. This critique employed deductive logic, rather than additional empirical observations and intense empiricism, and fundamentally queries the scientific value of debate’s empirical methods which, from the perspective of inductive science, have been shown as providing inadequate generalisations regarding informational efficiency of markets, fund manager skill, and most significantly, *ex ante* investment characteristics.

There are several immediate consequences for the financial economics and the capital market theory paradigm, which relies heavily upon this empirical literature. Given the above, the empiricism of the debate appears to provide only a powerful placebo for proponents of efficient markets and index-tracking schemes, rather than addressing stakeholder concerns regarding the price discovery process afforded by financial markets generally considered to exist in conditions of rational equilibrium.

The examination of the anomalies literature (within studies of return predictability *and* portfolio evaluation) reveals that these findings do not imply market inefficiency (as defined), nor do they represent scientific evidence which adequately affirms or dismisses the merits of active portfolio management. Rather, it is suggested that renewed focus be given to obtaining enhanced empirical details of the statistical properties of market indexes themselves (including the magnitude and direction of biases arising from constituent truncation from index turnover and float adjustment). This scrutiny is justified given the critical role indexes play in academic research as proxies of market

performance characteristics, and their widespread usage within the industrial sphere as the basis of indexation strategies.

From the perspective of economic policy development, the biases in market indexes which are currently unquantified, may result in significant economic costs from capital misallocations and superfluous financial markets transactions. Similarly, consideration ought to be given by index publishers to provide time series data which separately account for truncation effects occurring within the various financial product categories which would provide consumers and policy makers with improved information for decision making.

The structural transition of the pension segment from defined benefits and state-sponsored pensions to the “public offer” markets of fiduciary finance has made generic investment strategies derived from mean variance optimisation methods (and subject to vagaries of the historical data) and/or referenced to peer products the norm. It is apparent that relative measurement has become a powerful driver of contemporary investment products and performance evaluation practices, but the more fundamental question which has remained largely unaddressed is whether indexation based on market indexes provides an appropriate investment strategy. Further research needs to be directed at designing generic “liability indexes” which can be used more accurately align asset portfolios with the underlying liability structures – and therefore, the true investment objectives – of retirement portfolios (as per Leibowitz, 1986; Ryan, 1999).

The convergence effects occurring within the investment industry, driven by the relative performance debate, have profound ramifications which extend far beyond the business model and vested interests of active managers, to the management of fiduciary investment products, to issuer firms in financial markets. Given the large scale of indexed assets and the seemingly inexorable trend of growth in these strategies, the broader economic

impacts on securities markets is of increasing importance. Only sparse examples of the impacts on firms arising from this phenomenon have been documented in the literature to date, and typically, these have highlighted sensational examples rather than more subtle impacts on market pricing.

As the weight of professionally managed funds appears to succumb to the “zero-sum” argument provided by the debate, it may be conjectured that the capacity of unconstrained market participants to exert influence on the price discovery process is enhanced. This influence is likely to be disproportional to the size of their investment portfolios, and their activities will not necessarily reflect a desire to achieve market equilibrium according to fair values (as prescribed in normative models of investor behaviour). Rather, as the nascent literature regarding the abnormal trading characteristics associated with index events has already attested, unconstrained market participants may attempt to front run on the portfolio positions of their constrained counterparts. This is exemplified by index funds which are indifferent to valuation concerns and exist purely to replicate the composition and performance characteristics of the “market”.

The final irony apparent is that the relative performance measurements of the active versus passive debate have increased proliferation of indexing strategies and created an unrelenting pressure upon active fund managers to remain competitive whilst minimising portfolio tracking errors. These pressures have conspired to remove the single ingredient required to “beat the market”: to make material valuation judgements and portfolio bets against the market.

CHAPTER 7 – GATEKEEPERS AND THE FLOW OF FUNDS IN THE FIDUCIARY FINANCE INDUSTRY

7.1 Introduction

Within the literature, investment consultants – the specialist investment advisers to pension fund trustees and important “gatekeepers” of fiduciary finance – have received relatively superficial scrutiny. Most research has explored the investment decision-making processes used by pension funds and the performance outcomes reported by fund managers (as discussed in chapter 6). Therefore, the literature has not explicitly acknowledged the significant economic influence these gatekeepers exert: they literally define the “rules of the investment game” by setting the frameworks for fund manager selection/dismissal, performance evaluation, and the industry’s incentive structures (such as performance-based fees). Gatekeeper recommendations and subsequent investment mandate awards, directly affect the allocation of capital to fund managers, and they are an important conduit for pension funds’ investment capital which ultimately flows through to issuers in the financial markets.

Trustees of pension funds have recently been criticised as being weak customers which are heavily reliant upon the advice provided by the gatekeepers (HM Treasury, 2004: 8). These criticisms, and the high levels of market concentration existing in the gatekeeping industry, have raised concerns that the diversity of investment advice available may be threatened, adversely affecting the allocative efficiency of capital markets (RBA, 2003). Concomitantly, despite the concerns about pension fund trustees’ competence and their excessive dependencies on gatekeepers, focused scholarship has not documented the changing role of the gatekeepers and their expanding influence over FUM within the tertiary markets of Australia’s fiduciary finance industry.

Previous research, however, has not quantified the interdependencies arising between fund managers and gatekeepers, and the microeconomic effects for the *investment*

business: fund managers are captives who depend directly upon gatekeepers' recommendations for new mandates which provide business profitability.

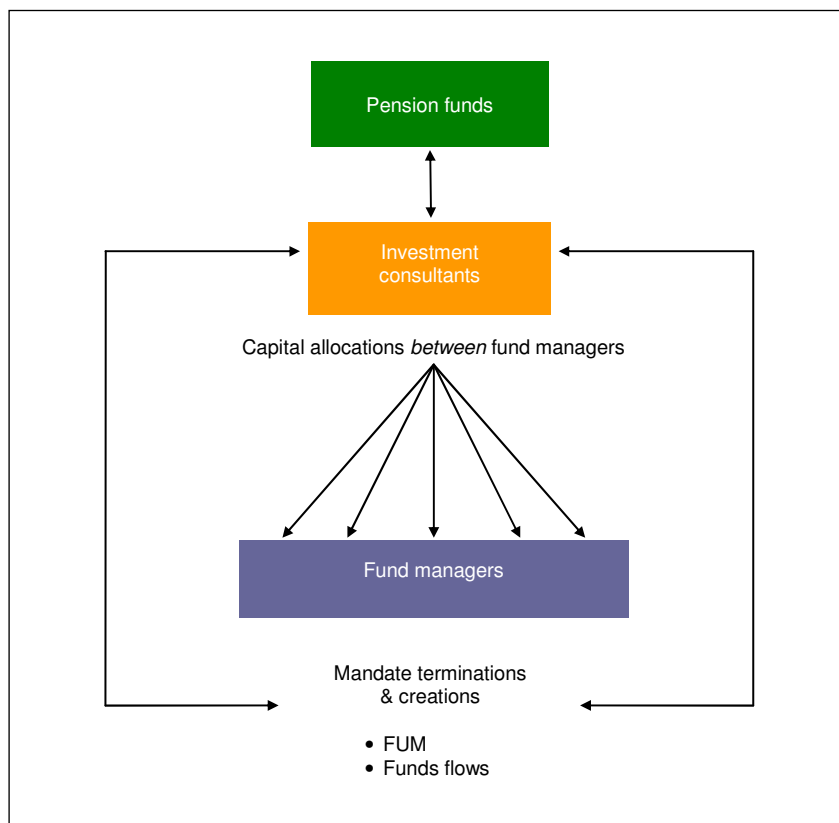
The implications of the gatekeepers' growing influence have received scant attention within the scholarly literature, and regulatory inquiries have primarily considered this issue from the trustee/client-gatekeeper perspective. However, from an investment perspective – and ultimately, security pricing in financial markets – it is necessary to understand how gatekeeper influence affects the distribution of capital amongst the fund managers which are ultimately responsible for deploying portfolio capital within the constraints of the investment mandates awarded to them by pension funds.

This chapter therefore provides two original avenues of inquiry which contribute to an informed view of gatekeeper influence within the industry's food chain and financial markets. First, using a product-focused approach, it examines the controversial gatekeeper-sponsored fiduciary product innovation known as “implemented consulting”: an innovation which has eluded critical scrutiny by finance academics despite the potential for agency issues/conflicts of interest and heightened concerns regarding pension fund governance. Second, it analyses the fund manager-gatekeeper interdependencies existing within the Australian industry to provide unique empirical insights which not been explored in previous inquiries.

The structure of this chapter is as follows. The first part provides a survey of the relevant literature relevant to the pension funds segment, including that specific to the functions of gatekeepers. This second part provides an overview of Australia's gatekeeping industry and the changing business models which have resulted in gatekeepers occupying an expanded (and potentially conflicted) position of influence as both “independent” financial advisers and fund managers. The third part undertakes a unique empirical examination of gatekeeper influence which cross-tabulates the investment mandates

awarded by a comprehensive sample of Australia’s largest pension funds between 2003 and 2006, according to their respective funds managers and gatekeepers. As is shown in figure 7.1, this analysis measures FUM scale and incremental funds flows generated from mandate creations and deletions (or “mandate churn”) in the industry’s “tournaments” which are overseen by the gatekeepers.

Figure 7.1: Metrics for analysing fund manager-gatekeeper interdependencies



This analysis is completed across all asset classes and within the Australian equities (the latter is the largest single portfolio allocation for Australian pension funds and is highly competitive from a market tendering perspective).

The final part summarises the main empirical findings, makes suggestions for future avenues of research, and considers the flow-on effects for the fiduciary finance industry and security pricing.

7.2 Background and previous literature

7.2.1 Pension fund decision making and the rationale of gatekeepers

Heisler *et al.* (2004) have noted that the research efforts focusing on the pension funds segment have lagged the large body of literature which has examined the mutual fund industry. The institutional structures and activities of pension funds have received belated coverage. The inquiries from academic and industry stakeholders into the economic rationales and commercial operations of gatekeepers have used different frames of enquiry. Lakonishok *et al.* (1992) invoking an agency perspective, have contended that the sponsors/trustees of “in-house” corporate pension plans use gatekeepers to identify those fund managers which considered easiest to explain to superiors, and thus, minimise their own reputation and employment risks. Clark (2000) has argued that pension fund trustees are primarily concerned with uncertainty: they seek advice and select fund managers according to their reputation and track record, in addition to cost considerations (although the theoretically literature has generally assumed that the risk-return relationship dominates investment choice). Del Geurcio and Tkac (2002) have questioned the heavy reliance placed upon consultants by pension trustees and corporate sponsors when hiring fund managers, given that these decision-makers are usually financial savvy professionals who better educated and informed than retail (mutual fund) investors.

Blake, Lehmann, and Timmermann (2002) have observed the phenomena of “herding” and the subsequent clustering of fund returns by fund managers occurring despite the considerable freedom afforded the pension fund trustees in the UK. As noted previously by Del Geurcio (1996), pension fund trustees and fund managers in the US are more likely to face threats of (or actual) litigation relating to breaches of prudential investment standards and fiduciary duties. The authors have attributed the narrow dispersion of pension fund performance to five main factors: *viz.* incentive effects of fees and fee structures; the performance evaluation environment; the high degree of concentration

(and thus lower availability of alternative providers of funds management services); low levels of manager turnover (relative to the US); and, the dominance of so-called “balanced” or multiple asset style strategies (where a single fund manager is responsible for asset allocations and security selections).

7.2.2 Fiduciary obligations and potential conflicts of interest

As concerns regarding corporate mismanagement (and subsequent investment losses) have receded, scrutiny has shifted to the governance of fiduciary financial products, and the activities of fund managers, gatekeepers, and pension fund trustees. The fiduciary obligations imposed on trustees, fund managers and pension consultants are clear: they must prioritise their clients’ interests and carefully mitigate any potential or actual conflicts when they are seeking to maximize their own profits. This standard of care flows in all directions within the industry’s food chain and the complexities of these relationships have been illustrated by a series of scandals, regulatory investigations and litigation actions arising from allegations of fraud, conflicts of interest, and dubious management practices (Mahoney, 2004; Khorana and Servaes, 2004).

The first wave of investigations centred on deficiencies and conflicts of interest in investment research which was misrepresented as being “independent”. The US Securities and Exchange Commission (SEC) and state regulators (led by New York attorney general Spitzer) conducted investigations into conflicts of interest in equity research analysis in conjunction with the market operators (NASD and the New York Stock Exchange) which culminated in the “Global Research Analyst Settlement” involving investor compensation and funding for independent research.⁹⁷

The next wave of scandals surfaced in September 2003 when US regulators found that some mutual fund managers had permitted “market timing” and “late trading” practices

⁹⁷ See further: <<http://www.globalresearchanalystsettlement.com/faq.php3>> (accessed 21 September 2006).

which allowed traders to make large profits at the expense of long-term investors.⁹⁸ A subsequent regulatory review of the domestic industry did not find any evidence of these practices in Australia (ASIC, 2004).⁹⁹

The next, and currently unfolding wave of regulatory investigations, has focused on US pension funds: in particular, their investment consultants. These actions followed queries raised by media commentators in the US (e.g. Revell, 2002; Arvedlund, 2003; Burr, 2004) which directly questioned the propriety of commercial arrangements between gatekeepers and fund managers. These arrangements included “kick-backs” and other indirect benefits being paid to gatekeepers by fund managers (known as “pay-to-play” schemes).¹⁰⁰ In 2005, the SEC released the findings of a preliminary examination into the business structures and practices of pension fund consultants noting that ‘...it appears that many consultants believe they do not have any fiduciary relationships with their advisory clients and ignore or are not aware of their fiduciary obligations’ (SEC, 2005a: 6) and that ‘...some pension consultants appear to have erroneously concluded that they are not fiduciaries to their clients’ (SEC, 2005b).

Whilst pension funds have come under greater regulatory scrutiny, they have, in turn, scrutinised their investment advisors, ancillary service providers, and stock exchanges. In June 2004, the largest public pension fund in the US, the California Public Employees'

⁹⁸ These trading practices allowed selected investors trading in shares of mutual funds to make virtually risk-free profits at the expense of investors remaining in the fund. “Market timing” allows investors to exploit delays occurring in the pricing of mutual funds whose portfolios are revalued outside of the normal hours (e.g. those with offshore assets). In these circumstances, a mutual fund’s shares were bought and sold at a fixed price during the day by the mutual fund manager (who also acts as the market maker). By monitoring market movements, a market timer can make profits with the benefit of hindsight by transacting based on “stale” closing prices from the day before. Late trading involves buying or selling after the value of the fund has been set at the end of the trading day. Late traders effectively are able to backdate transactions with knowledge of the movements in the value of the portfolio.

⁹⁹ In Australia, fund managers typically use a “T+1” approach whereby orders placed on a day receive the fund’s price calculated on that day’s closing value, thus removing market timing and late trading opportunities.

¹⁰⁰ Under a pay-to-play scheme, the fund manager is required to make cash payments or “soft dollars” to the gatekeeper before its services/fiduciary products will be recommended to pension fund clients.

Retirement System (CalPERS) announced that it was surveying its investment consultants to determine if they received commissions (i.e. “hard dollars”), or “soft dollars” (i.e. indirect payments, or other in-kind benefits) (Anand, 2004). In December 2003, CalPERS commenced a civil lawsuit against various NYSE “specialist” brokers, and the market operator itself, asserting that they had breached their fiduciary duties to the pension fund and violated US securities regulations (Weinberg, 2003).¹⁰¹ Because the trustees of many US public pension funds are also publicly-elected officials, their reform efforts have been complicated by political intrigues and accusations of conflicts of interests (Zamansky, 2003; Parloff, 2004).

7.2.3 Gatekeeper expertise in fund manager selection: performance-flow and product aspects

Within the literature several aspects associated with fund manager selection have been examined including the relations between performance and asset flows, differences between client-side characteristics (mutual fund and pension segments), product features, and factors governing selection and dismissal of fund managers. The performance-asset flow relation has been examined relying upon the reasonable (but potentially misplaced) presumption that investment performance is the key criterion for manager selection and dismissal. However, studies have revealed that in the “tournaments” overseen by gatekeepers, even strongly performing fund managers may be dismissed if they stray from their investment styles (Brown, Harlow and Starks, 1996; Busse, 2001).

The reality that contributions flowing to fund managers from pension funds may be subject to the institutional inertia of their sponsors and/or the personal relationships existing between fund trustees and their service providers, has been confirmed by findings which reveal that cash flows appear to be awarded systematically and independently of their performance. An emerging group of studies has focused therefore

¹⁰¹ The market specialists were accused putting proprietary interests ahead of their clients’. The courts later dismissed the substantive claims of these cases.

on the relation between performance and asset flows, and the factors governing selection and dismissal of fund managers in both the US and Australia. Heisler *et al.* (2004) and Del Guercio and Tkac (2002) examined the performance-flow relation for active US domestic equity managers and related the observed empirical differences to different client characteristics within the pension fund and mutual fund segments. Although mutual fund and pension segments were influenced by performance, the flows from pension funds to their funds managers were more linear than mutual funds: pension trustees were more likely to punish underperforming managers whereas the performance-flow relation in the mutual funds segment was asymmetric (Chevalier and Ellison, 1997; Sirri and Tufano, 1998). Within the pension funds segment, authors concluded that out performance of the benchmark (excess return) was essential for garnering funds flows, whereas within the mutual fund segment, the magnitude of excess returns was strongly correlated with asset flows.

Heisler *et al.* (2004) have noted that poorly performing fund managers may be “switched off” and lose asset flows, but they are not terminated by pension trustees. This suggests that a more subtle decision-making process is followed (rather than a binary “hire” or “fire”) dependent upon the trustees’ individual expertise, their relationships with the fund managers, and the pension fund’s financial characteristics (such as benefit structure, liquidity, and taxation position). Further, the research literature has confirmed that pension trustees screen candidates according to performance outcomes, however, they often rely upon qualitative factors such as customer service and their relationships with fund managers when making “hire and fire” decisions. Parwada and Faff (2005) examined 242 Australian equities mandates awarded by pension trustees according to the variability of returns, tracking error and gatekeeper ratings. They noted that fund managers were typically selected if they had delivered top quartile performance over five-year performance periods, and that high ratings from gatekeepers were a positive screening factor [for the inclusion of potential managers for short-listing purposes] ‘...but

it is likely that performance per se will not bear heavily on the final decision to appoint a manager from a short list' (Parwada and Faff, 2005: 87). The authors also concluded that although pension fund trustees were sensitive to performance "leakage" from management expenses and other direct portfolio operating costs (measured by the management expense ratio), they appeared to be oblivious to the deleterious impacts of high portfolio turnover and resultant transactions costs and market impacts. Dishi, Gallagher and Parwada (2005) analysed the managerial implications of terminations using a sample of 1,372 Australian pension fund mandates and noted that terminations often resulted in the dismissal of responsible portfolio managers; however, trustees did not appear to consider performance improvements which emerged following managerial changes within the fund managers.

7.2.4 Capital productivity and incentive effects of the fiduciary finance industry

Given the growth and scale of the pension industry (and fiduciary finance generally) queries have been raised more recently regarding the productivity and efficiency of the investment capital deployed by these institutions; especially, in the context of corporate governance concerns and expectations of increased institutional investor activism (these important aspects are discussed in chapter 8).

Inquiries initiated by industry stakeholders (including prudential supervisors, industry regulators and policy makers) have focused some attention on the functions and economic influence of gatekeepers. In 2000, the UK Treasury commissioned a comprehensive review of the UK pension industry's structure (the *Myner's Review of Institutional Investment in the United Kingdom*) which identified distortions caused in pension fund decision-making processes and provided guidelines to enhance the productivity of capital invested by these institutions. Amongst its key findings, it criticised pension fund trustees for lacking the necessary expertise to be effective investment decision makers, discerning and confident customers of investment consultants and fund managers, and

that they [the trustees] placed heavy reliance on a small number of investment consultants (Myners, 2001: 1). In December 2004, a follow up review which collected evidence on the rate of change in the pension industry and the take up of the Myners Review's voluntary principles of best practice for investment decision-making by pension fund trustees. It found a number of areas needed further improvement, especially in relation to the skill levels of trustee boards and the continuing lack of clarity in relation to the roles and responsibilities of trustees and their advisers. It concluded that: pension fund trustee boards were weak customers who lacked the investment expertise to sufficiently scrutinise their investment consultants and fund managers; there was poor evaluation of advisers and the advice they had provided; trustees placed excessive reliance upon a small number of investment consultants; there was continuing ambiguity in the respective roles of trustee boards and their advisers; and, the practice of "bundling" investment advice with other consulting services had not been curtailed (HM Treasury, 2004: 23).

In 2003, a working group of central bankers convened under the auspices of the Bank for International Settlements (BIS) surveyed the burgeoning institutional investment industry to examine the "incentive effects" of this industry and the likely ramifications for the stability of financial markets. This working group considered trends in the institutional investment industry and their implications for market efficiency, volatility, liquidity, and risk management. It reported that incentive structures (and investment consultants) had significant effects on decision-making behaviour, but could not make a definitive judgement as to whether the investment management industry itself could create dislocations in financial markets (Committee on the Global Financial System, 2003: 4). Locally, the Reserve Bank of Australia also examined the activities and economic influence of pension fund gatekeepers in the Australian fiduciary finance industry and found high levels of market concentration within the industry (compared to the funds management industry) and expressed its concern that this situation created '...the risk of a lack of diversity in investment advice' (RBA, 2003: 58).

7.3 The evolving business model of gatekeepers

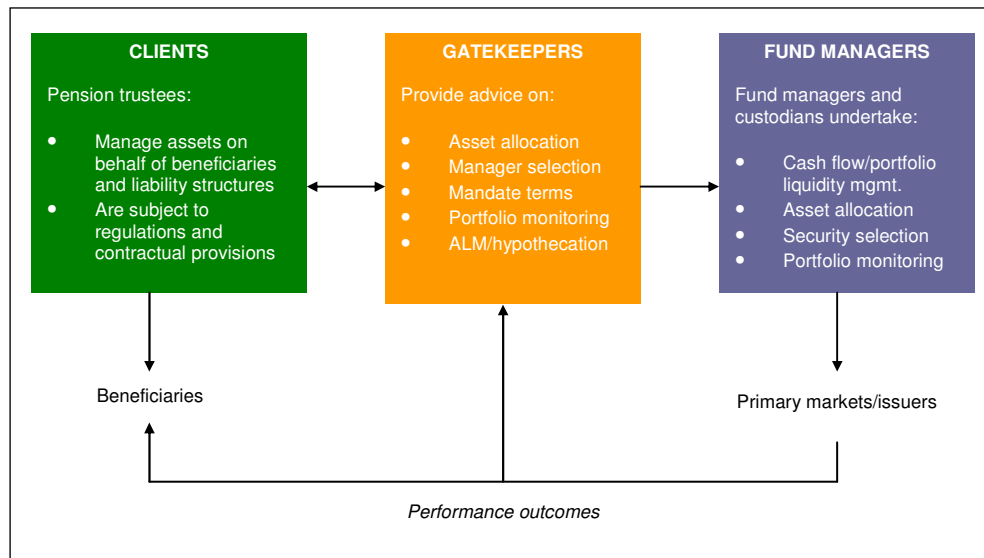
7.3.1 Institutional structure and the dynamics of the gatekeeping business

A high degree of economic concentration is evident within Australia's gatekeeping industry. The Australian pension fund market is serviced by twenty-two investment-consulting firms (compared with over ninety money management firms) and this small group of firms exerts influence over 83 per cent of the total funds under management of not-for-profit pension funds (Rainmaker, 2004a: 33; Axiss Australia, 2004a). Further, it has been estimated that the ten largest consultants advise approximately 94 per cent of the total assets of the total pension funds segment, with the top five investment consultants advising three-quarters of the largest 500 corporate pension funds (in terms of assets) (RBA, 2003: 58). These market characteristics are not peculiar to Australia: the Myner's Review noted that in the United Kingdom the four largest investment consulting firms held approximately 70 per cent of market share and approximately 85 per cent of mandates awarded (Myners, 2001: 64-5).

The trend of increasing market concentration has accelerated over the past decade. According to Rainmaker (2004a) the number of investment consulting firms halved in the four years to 2004 and it has forecasted that fewer than 15 firms will exist by 2009 (p. 34). In addition to the horizontal consolidation occurring within the gatekeepers, many not-for-profit pension funds, recognizing a need to achieve scale efficiencies to remain competitive with other funds and for-profit investment platforms, have instigated mergers prompting further rationalisations of gatekeepers (and other service providers). For example, in May 2006 two large not-for-profit industry pension funds, Superannuation Trust of Australia (STA) and Australian Retirement Fund, announced their intention to merge effective 1 July 2006, creating a fund with over 1 million members and total portfolio assets exceeding \$20 billion.

Investment consultants occupy a crucial fiduciary role which has traditionally involved providing research services and financial product/fund manager recommendations to pension fund trustees. Figure 7.2 provides a stylised representation of the traditional gatekeeping functions.

Figure 7.2: The traditional gatekeeping role of investment consultants



In their traditional role as investment advisers to the trustees of pension funds, gatekeepers influence the allocation of funds to various financial markets (via asset allocation advice), and fund managers (via the awarding of mandates).

Their economic influence within the industry's tertiary market is substantial: Rainmaker (2004a) has estimated that 93 per cent of pension funds employ external managers to manage their investment portfolios, and the Reserve Bank of Australia has estimated that in excess of 85 per cent of the investment mandates and funds flows distributed to fund managers, were sourced via gatekeepers (RBA, 2003: 57).

7.3.2 Gatekeeper functions, structural change and product innovation

The scope of gatekeeper involvement in pension fund governance has increased markedly with the broader trend of un-bundling: pension funds are replacing “balanced” strategies (where a single fund manager is mandated to manage asset allocation and security selections within asset classes) with mandates awarded to specialised fund managers according to sector-specific and asset allocation strategies.¹⁰² These changes have, in turn, necessitated an increased frequency of investment mandate changes and associated monitoring actions across the pension funds segment. Simultaneously, gatekeepers have expanded their influence as investment advisers to the rapidly growing “investment platforms” such as master trusts and wrap accounts (discussed in chapter 2).

Whilst the commercial importance of gatekeepers has increased as a consequence of the pension system’s asset growth and market dynamics of the investment industry, they have also been transitioning their own business structures. Table 7.1 shows that in addition to providing trustees with investment advice and charging for this advice according to a “fee-for-service” basis, several gatekeepers have sponsored their own fiduciary products (known as “implemented consulting” schemes) to capture scale-based management fees.

According to Rainmaker (2006a), the FUM split between traditional and implemented asset consulting was approximately \$250 billion versus \$67 billion; however, in the three years to 30 June 2006, the compound annual growth rate was 18 per cent and 64 per cent, respectively (p. 6). Further, since 2001, implemented consulting had grown from being 7 per cent to 21 per cent of the total pension segment’s total FUM.

¹⁰² Parwada and Faff (2005) above in their analysis noted that “balanced” mandates experienced the highest number of terminations (approximately 37% of all terminations).

Table 7.1: Changing modes of gatekeeper advice and influence

	Mode of advice		
	<i>“Traditional” investment advisory</i>	<i>Advisers to “platform” products</i>	<i>“Pure” funds management/implemented consulting</i>
Timeline	Pre-mid 1980s	Post-mid 1980s	Post-mid 1980s
Business model	Fee-based on time, retainer, or value of pension fund	Traditional advisory fees <i>plus</i> fund manager fees derived from FoF offering	Fees and charged for product based on assets under management
Scope/function	<i>Independent adviser</i> to sponsors/trustees of corporate, public and industry funds of employee benefits (not-for-profit); advice regarding asset allocation/fund managers	<i>Investment adviser</i> to the sponsors/commercial trustees of platform products (for-profit); providing advice regarding asset allocation and/or fund manager/product selection for platform investment “menu”	<i>Fund manager</i> : Investment principal and sponsor of implemented consulting scheme.
Investment proposition	“Best advice” on fund structure and selection of competent fund managers	Selection of “appropriate” fund managers for platform	Competitive performance

Thus, gatekeepers have expanded beyond their traditional role as independent investment advisors to pension fund trustees to become “managers of managers” (selecting underlying fund managers which undertake the portfolio security selections within the fund-of-funds structure).¹⁰³ As the sponsors of implemented consulting schemes (which form the point of capture for FUM and on-going cash flows), the gatekeepers occupy dual roles as both investment advisors and fund managers.

The gatekeepers’ ability to effectively control the distribution of funds has placed them in direct competition with “conventional” fund managers and raised concerns regarding potential conflicts of interests. First, in providing their clients with the “best investment solution, gatekeepers are be likely to present the implemented consulting scheme as the “default” investment recommendation (which also maximises their own profitability) ahead of other fiduciary products and services offered by funds managers. Second, these

¹⁰³ Multiple-manager portfolios are not a recent innovation: Rosenberg (1977) first suggested the separation of portfolio strategy and execution using multiple managers within the context of “centralised” management. Subsequent papers have examined the investment aspects of these structures (Sharpe, 1981; Troutman, 1991; diBartolomeo, 1999; Ennis, 2001; Elton and Gruber, 2004).

schemes have placed fund managers in an invidious position: they can only gain distribution access to the gatekeeper's clients (and funds flows) if they are included on the "panel" of fund managers for the implemented scheme. In this context, gatekeepers can exploit their market power to force downward pressure on investment fees (which may, or may not, be passed on to clients as fee rebates) or to demand fee "splits" from fund managers and/or charge "shelf space" fees (retained by the gatekeeper as a direct economic benefit); the latter have attracted recent regulatory scrutiny (as noted in section 2.6.3).

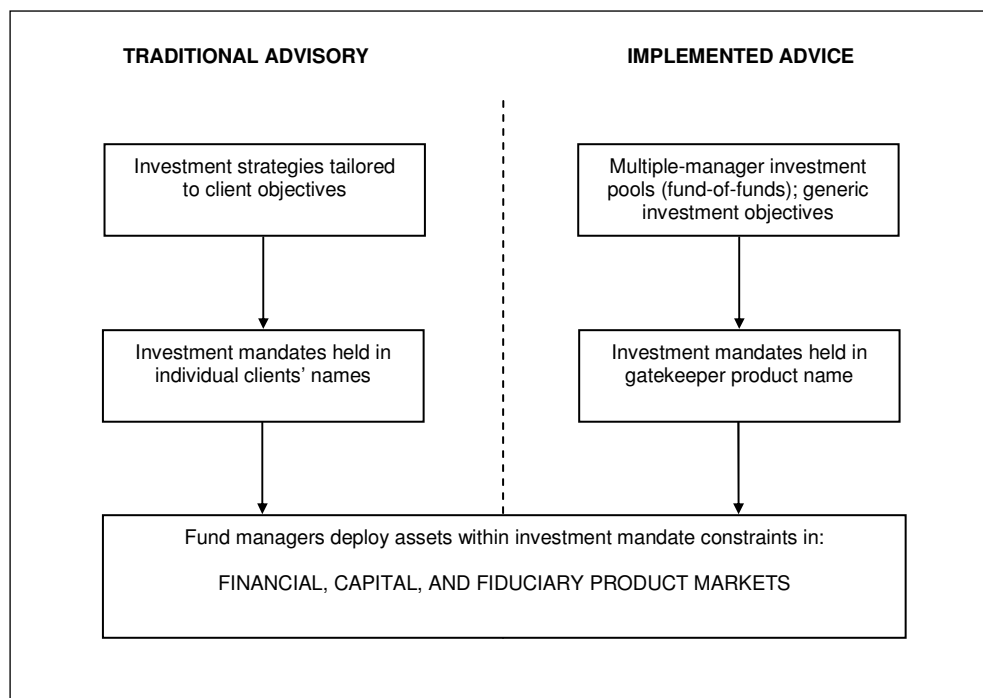
The potential for classical agency concerns (described by Ross, 1973; Jensen and Meckling, 1976) is particularly fertile within the pension funds given the large number of specialist service providers and economic agents appointed by pension fund trustees (the principals who act on behalf of their beneficiaries). Lakonishok *et al.* (1992) have identified that agency costs may arise for both the beneficiaries themselves and trustee/sponsors because these decision makers may use gatekeepers to select fund managers to minimise their own reputation and employment risks. More recently, attention has been drawn to the agency considerations existing even *within* funds management groups (Massa, 2003; Khorana and Servaes, 2004, Mahoney, 2004).

Given that the Myner's Review and subsequent inquiries have found that pension fund trustee boards have not established an appropriate client relationship with their investment consultants, and that the "bundling" of services has been frowned upon, the emergence of implemented consulting schemes, has brought the potential of agency issues and conflicts of interest of gatekeepers into sharp focus in Australia, especially within the financial media (e.g. Durie, 2003; Wilmot, 2003).

Figure 7.3 provides a schematic overview of the funding flows from the pension funds, under the "traditional advice" and "implemented advice" modes of consulting. Prima

facie, in terms of the investment exposures received by the ultimate beneficiaries, there are few discernable differences between these modes of gatekeeper advice. In both modes, the gatekeeper effectively selects the fund managers; however, under the implemented consulting scheme, these changes are made immediately because the trustees of pension funds are not consulted individually prior to the changes to the investment mandates and/or the configuration of the fund managers.

Figure 7.3: Modes of gatekeeper advice and pension portfolio funding flows



Implemented consulting schemes have been embraced by *employers/pension sponsors*, as the trend of outsourcing the provision of employee retirement benefits has accelerated. Employers which have traditionally established and managed pension funds internally to provide retirement benefits for their staff have faced increasingly onerous legal obligations under the prevailing superannuation regulations. Implemented consulting schemes therefore provide an “investment solution” for employers who have sought to eliminate operational and compliance risks associated with “in house” pension funds.

From the *gatekeepers'* perspective, as alluded to earlier, implemented consulting products provide opportunities to align fee revenues with their clients' asset bases, and to derive

growing income streams (rather than one limited according to a fee-for-service schedule or retainer). There are also other practical benefits which address inherent agency concerns. First, performance-related remuneration can be incorporated into the implemented consulting scheme to more closely align the interests of the gatekeeper (to maximise returns in its role as an integrated fund manager) and its clients. Second, this mode of advice allows gatekeepers to focus on their core competency: manager selection. Third, it provides a mechanism to ensure that all clients simultaneously receive their “best investment ideas” in terms of portfolio strategy and fund manager selections (thus, addressing concerns about inequitable treatment amongst clients). Finally, gatekeepers can distribute their own “branded” fiduciary products into new markets (i.e. reach markets beyond their traditional clientele of pension fund trustees) using financial platforms.

Amidst the concerns raised by industry observers and regulators regarding the duality of gatekeepers’ roles (as advisers and fund managers), the promoters of implemented consulting schemes have argued that they *mitigate* potential agency costs (e.g. MLC Implemented Consulting, 2004) inherent in traditional pension fund structures. For example, under traditional investment consulting arrangements, the trustees would need to convene an investment committee to consider and effect any change of fund manager as recommended by the gatekeeper. Depending on the speed of the trustees’ decision-making, beneficiaries may suffer economic disadvantages flowing from a fund manager’s continued underperformance and/or the market impacts of being the “last customer in the queue”: other investors may redeem their funds from the incumbent fund manager (which may be pressured to liquidate portfolio holdings at any price to meet mandate termination/ redemption requests).

Implemented consulting schemes – where the fund manager/mandate changes are coordinated by the gatekeeper in a centralised fashion – also provide opportunities for

more efficient portfolio restructuring. The gatekeepers can employ specialist “transition managers” which liaise with the incoming and incumbent fund managers to ascertain common portfolio holdings and use crossings (off-market transactions) to minimise portfolio turnover costs.

In response to the emerging concerns regarding the duality of their role, some gatekeepers have exited traditional consulting activities completely to focus only on “pure” funds management. Others have mitigated potential conflicts of interest by withdrawing completely from fund manager research/selection, or have chosen to offer only generic asset allocation advice.

7.3.3 An appraisal of implemented consulting schemes

Viewed from an investment perspective, the implemented consulting model provides pension fund trustees with a seamless investment solution which brings plausible efficiency benefits versus conventional decision-making structures typically employed in corporate pension funds. However, there is currently a dearth of long-term data which can adequately validate the promoters’ claims of cost savings or improved investment performance, even allowing for the inadequacies of this performance evaluation framework (as discussed in chapter 6).

The trend to implemented advice appears to be inexorable and reflects the commercial realities of the fiduciary finance industry. Furthermore, there are no compelling reasons why gatekeepers should be prevented from transitioning their business models to maximise their profitability. However, for gatekeepers who have chosen to provide implemented consulting schemes alongside traditional advisory services, a substantial onus remains to address perceived or actual conflicts of interests which are inherent in these fiduciary products. The recent regulatory scrutiny of shelf-space fees charged by investment platforms within retail funds management, reinforces the imperative of

gatekeepers providing full disclosure of the myriad fees paid to/received from fund managers and other service providers. As noted earlier, although precedents for fee-sharing arrangements between suppliers and distributors exist in other economic sectors/industries, the legal and moral obligations unique to fiduciary finance make these arrangements more problematic for gatekeepers. In this context, pension fund trustees – which retain the onerous fiduciary obligation to maximise their beneficiaries’ interests – must objectively quantify the value proposition of implemented consulting schemes to their beneficiaries and to prudential regulators.

7.4 Empirical analysis of fund manager-gatekeeper interdependencies

7.4.1 Selection of data and methodology

The purpose of this empirical study is to quantify gatekeeper *influence* within the fiduciary finance industry’s tertiary markets; namely, the interdependencies arising between fund managers (suppliers) and gatekeepers (distributors). In selecting a relevant and representative dataset for this study, careful consideration was given to the different modes of gatekeepers’ advisory activities and the available data. Although gatekeeper recommendations in the implemented consulting (or “pure” investment management) mode *should* provide a useful lens through which to focus upon their “best investment ideas”, the relatively small number of these schemes in operation (and thus paucity of available data) makes them unsuitable for the purposes of making meaningful generalisations about the interdependencies existing within the industry.

Also, as noted in section 7.3, the gatekeepers’ evolving role as independent advisers to investment platforms has significantly expanded their influence within the industry’s tertiary marketplace. However, in this context, they are responsible for devising an “appropriate” investment menu (in terms of asset strategies and fiduciary products): the gatekeeper effectively provides a quality assurance/compliance filter to the “client” demands (i.e. requests from distributors) for fiduciary products. Therefore, gatekeepers

do not necessarily construct the menu to ration their “best investment ideas”, nor do adverse recommendations automatically result in removal/replacement of fiduciary products from the investment menu due to numerous practical considerations.¹⁰⁴ For this reason, therefore, this study focuses on the gatekeepers’ traditional investment advisory role as it pertains to pension funds and the awarding of investment mandates to fund managers.

This study uses proprietary data extracted from the *Rainmaker Workstation*, a database compiled by Rainmaker Information (a specialist industry information firm) which tracks the details of Australian not-for-profit pension funds. This database includes comprehensive data types including: *fund type* (corporate, industry, and public sector); *investment consultant/s* to the funds, the *fund managers* employed by those funds, and details of the individual *investment mandates* (i.e. number of mandates, value of mandates, and the asset classes they covered). As table 7.2 shows, the data for this study is drawn from a large sample of 258 pension funds, 3,163 investment mandates, amounting to approximately \$322 billion of FUM as at 30 June 2006. Importantly, this sample provides comprehensive segment coverage equivalent to approximately 89.2 per cent of the relevant pension funds universe (as shown in table 2.10).

Table 7.2: Descriptive statistics for Australian pension fund mandates

Over the period analysed in this study, it is evident that although the number of pension funds declined slightly (due to the continuing rationalisation trends within the ranks of

¹⁰⁴ As noted in chapter 2, the users of financial platforms are typically non-allied (“independent”) financial advisors and other sales intermediaries. Operators of platform products must carefully manage changes to the menu of available investments because the expansion of the menu increases administrative complexity, and thus, potential affects the product’s profitability. The removal of products (and portfolio re-balancing) usually attracts client scrutiny and requires client permissions. These changes also result in the imposition of transaction spreads and may have adverse taxation consequences for clients.

pension funds noted earlier), the total number of the pension funds' outstanding (i.e. "in force") investment mandates with fund managers grew marginally, while their aggregate value grew significantly on average due to strong asset portfolio growth and contributions from pension fund members (APRA, 2006).

As figure 7.1 shows, the primary metric selected for measuring fund manager-gatekeeper interdependencies in this study, is the *value* of FUM affected by mandate churn. Using the available data, interdependencies can be measured according to FUM *scale* (i.e. the linkages between fund managers and gatekeepers for all of the investment mandates which are "in force" at any point in time); however, this approach only provides static snapshots of gatekeeper influence. Greater data granularity is afforded by also examining the interdependencies associated with the *incremental* FUM which is created by investment mandate churn. This approach has relied upon a principal assumption: that mandate changes are strongly influenced, if not directed by, the gatekeepers.¹⁰⁵

Mandate churn was calculated by undertaking a sequential comparison of the in force investment mandates for all pension funds in the sample at the end of each financial year between 2003 and 2006. This process identified instances where pension funds tracked in the database had changed their investment mandates and the details of the investment mandates awarded (according to number, FUM, asset classes covered) were cross-tabulated according to the respective fund managers and gatekeepers.

Using this incremental analysis, it was possible to analyse fund manager-gatekeeper dependencies from two perspectives. First, gatekeeper influence was measured according to overall levels of mandate churn across the industry, and their respective share of all new investment mandates awarded to fund managers in the various asset classes. Second,

¹⁰⁵ As noted in the literature above however, pension trustees may exercise their discretion to use or ignore gatekeeper advice to alter the cash flows directed to fund managers.

from the fund managers' perspective, their dependencies on the "lead" gatekeeper (defined as the single gatekeeper which awarded the largest amount of new investment mandate FUM), and their sensitivity to the new business flows derived from investment mandate awards, generally, was analysed. The following sections report the fund manager-gatekeeper interdependencies across all asset classes and within the Australian equities separately. Full matrixes of the aggregate fund manager-gatekeeper interdependencies are provided for investment mandates across all asset classes, and Australian shares, in appendices 6 and 7, respectively.

7.4.2 Investment mandate churn analysis – all asset classes

Table 7.3 below summarises mandate churn across all asset classes throughout the analysis period. Overall, 1,436 new investment mandates were awarded with a total value of \$107.6 billion (by contrast, as at 30 June 2006 there were 2,778 mandates in force with a value of \$308.4 billion).

Table 7.3: Investment mandate churn for Australian pension funds

The analysis of mandate churn revealed that gatekeeper influence resulted in relatively frequent levels of fund manager turnover. On average, pension funds in the sample turned over 34.9 per cent of all investment mandates by value (and 51.7 per cent by number). It was also notable that in the two largest asset classes Australian equities and international equities (52.6 per cent of the value of all mandate creations and \$155.3 billion of FUM) where active management approaches are generally considered most

likely to add value, that gatekeepers' influence resulted in significant levels of portfolio turnover.

The results of the analysis linking the value of investment mandates awarded to fund managers in all asset classes by the respective gatekeepers are reported in table 7.4.

Table 7.4: Gatekeeper influence over mandate churn (all asset classes)

Consistent with the trends of concentration observed in funds management market itself, the incremental FUM allocated amongst fund managers from new investment mandates was highly concentrated in the hands of a small number of players: excluding instances where multiple gatekeepers were used, the five largest influenced 94.5 per cent, and the ten largest (excluding instances of multiple and internal gatekeepers) 98.6 per cent, respectively.

Further, as shown in table 7.5, fund managers were generally highly dependent upon their "lead" gatekeeper (the largest single source of new funds flows from all investment mandates they won). Even the largest twenty fund managers received between 22.0 per

cent and 65.7 per cent (44.0 per cent on average) of their total new business FUM from their lead gatekeeper, over the period analysed.

Table 7.5: Fund manager-gatekeeper dependencies (all asset classes)

It is evident from these results that there is a large dispersion in the magnitude of fund managers' dependencies upon their lead gatekeepers; however, these results must be interpreted with cognisance of the investment approaches incorporated into the mandates awarded, and the commercial relationships existing between the fund managers and gatekeepers. For example, amongst the fund managers with the highest lead gatekeeper dependencies were those specializing in index-tracking strategies (e.g. State Street Global Advisors, Vanguard Investments) and/or those with allied gatekeeper relationships (Members Equity wholly owns its lead gatekeeper): accordingly, the significant "business risk" implied in these lead gatekeeper dependencies is mitigated because in reality these

investment mandates represent high volume/low margin FUM which is less likely to be subject to price discounting (or even contested) by competitors.

Nonetheless, these findings are especially significant because even the largest “active” fund managers operating in the Australian fiduciary finance industry (e.g. Balanced Equity Management, Bridgewater Associates, Capital Group, Deutsche Bank, GMO, Perpetual, UBS, Wellington Management, Macquarie Bank Group, Perennial), despite the overall scale of their business FUM and broad customer relationships, remain subject to significant levels of lead gatekeeper dependency.

7.4.3 Investment mandate churn within Australian equities

As noted in the introduction (and section 2.10), the Australian asset class is important for research purposes because it is the single largest investment allocation of Australia’s fiduciary finance system. Further, from a business perspective, the Australian equities class is highly competitive as it is serviced by a large number of domestic and offshore competitors. For these reasons, examining this asset class provides a useful gauge for generalising about the fund manager-gatekeeper interdependencies existing in the industry.

As the results of the investment mandate churn analysis reported in table 7.2 showed, Australian equities provided a large number of observations (both in terms of the number and FUM awarded): 275 new mandates were created with an aggregate combined FUM value of \$28.7 billion over the analysis period, and as at 30 June 2006, there were 598 mandates in force with an aggregate value of \$87.5 billion (providing mandate churn rates of 46.0 per cent by number, and 32.8 per cent by FUM, respectively).

The analysis of mandate churn revealed that the gatekeepers’ proclivity to turn over fund managers was even more pronounced in this asset class (higher than investment mandates

awarded to all asset classes an average), and as shown in table 7.6, the influence of gatekeepers was even more highly concentrated: excluding instances where multiple and internal gatekeepers were used, the five largest influenced 95.1 per cent, and the ten largest 99.8 per cent, respectively, of the total FUM awarded under new investment mandates.

Table 7.6: Gatekeeper influence over mandate churn (Australian equities)

Table 7.7 shows the results of the fund manager-lead gatekeeper dependencies. Of the total new FUM awarded for Australian equities mandates (and excluding instances where pension funds elected to manage their assets internally) the bulk of the fund flows were distributed amongst a relatively small group of fund managers: the five largest received 35.2 per cent (\$9.5 billion) and the ten largest received 51.0 per cent (\$13.7 billion), respectively.

Table 7.7: Fund manager-gatekeeper dependencies (Australian equities)

These data show that on average, that 63.7 per cent of the total FUM awarded to the fund managers was sourced from their lead gatekeepers (versus 50.5 per cent for all investment mandates). Further, amongst the twenty largest fund managers, seven firms had lead gatekeeper dependencies exceeding 50 per cent (i.e. they received more than half of their total funds flows from a single gatekeeper). The overall dispersion in lead gatekeeper dependencies within Australian equities was higher than for all investment mandates, however, the minimum and average levels of lead gatekeeper dependencies were significantly higher. These findings confirm the significant fund manager-gatekeeper dependencies: surprisingly, within this highly contestable asset class, gatekeeper influence was even more concentrated than for all asset classes.

7.5 Conclusions and avenues for further research

This chapter has noted that the source of investment advice for Australia's pension funds is highly concentrated in the hands of relatively few asset consultants. These gatekeepers exert influence over virtually all of the funds flows distributed within the tertiary markets of fiduciary finance to fund managers (and thus their profitability).

Given the concerns of stakeholders regarding the potential conflict of interests arising from implemented consulting schemes, the first part of this chapter provided a comprehensive analysis of this fiduciary product innovation. Overall, these schemes appear to provide an efficient means of managing large pension portfolios, subject to three main caveats. First, for gatekeepers which provide traditional advisory and implemented consulting in parallel, it remains incumbent upon them to demonstrate that appropriate "Chinese walls" are in place to separate their traditional investment consulting and funds management operations. Second, there must complete transparency of all benefits and interests received by the gatekeepers from their suppliers. Third, responsible trustees and fiduciaries must ascertain if the cost savings and other benefits promised by the promoters of these schemes actually accrue to the beneficiaries.

Despite the high levels of market concentration and economic interdependencies existing between fund managers and gatekeepers, the dynamics of the industry's tertiary markets are unlikely to respond to regulation to increase the diversity of advice; nor are such moves likely to deliver improved investment outcomes for beneficiaries. Rather than trustees of pension funds being coerced to use the existing service providers, this market is largely self-selecting and the nature of advice (and fiduciary products themselves) is largely fungible. The concerns expressed regarding diversity of investment advice therefore appear to be unfounded: implemented consulting schemes *per se* have not amplified (and may actually mitigate) the "incentive effects" associated with traditional fiduciary product structures.

The second part of this chapter provided an empirical analysis of investment mandate churn by Australia's largest pension funds. This introduced new dimensions to the literature which had previously explored performance-flow relations, performance outcomes, and pension trustees' (customer-gatekeeper) reliance upon gatekeepers but not the economic linkages existing between fund managers and the gatekeepers (supplier-gatekeeper).

The analysis in this chapter used a large sample of Australian pension funds and found that trustees turned over their fund managers frequently. These levels of mandate churn were surprising given the generally-accepted view (and persistent message communicated to consumers) that a "patient" investment strategy is needed to capture the full economic benefits of financial planning/portfolio construction processes. These results are also suggestive of "return-chasing" behaviour by pension fund trustees and their advisers, potentially creating in significant transactions costs being borne by the beneficiaries.

By using scale and incremental metrics, this analysis revealed that virtually all (95%) of the industry's FUM was influenced by the largest five gatekeepers in all asset classes, and within Australian equities. Further, the analysis of the fund managers' dependencies on their lead gatekeepers revealed that the distribution of new business flows within the tournaments of fiduciary finance was highly skewed to the largest winners. For many of the largest fund managers operating in the Australian market, the minimum lead gatekeeper dependencies ranged between 22 per cent (asset classes) and 30 per cent (Australian equities), respectively, and on average, half of all funds flows received were sourced via a single gatekeeper. Tellingly, substantially higher lead gatekeeper dependencies existed within Australian equities, despite this asset class being highly "contestable". Overall, these results have underscored the critical imperative of fund managers remaining on gatekeepers' "recommended lists".

As noted in this study, from a *business* perspective investment mandate churn results in significant sums of capital being “recycled” amongst fund managers which directly affects the profitability of the fund managers concerned. However, from an *investment* perspective, these changes do not automatically result in significant impacts to the aggregate cash flows invested into the financial markets nor do they usually change the underlying exposures of most pension funds markedly: the new fund manager will typically manage the same asset class/es and be held accountable according to the same market benchmarks (and within the same risk budget, typically measured by *ex ante* tracking error) as its predecessor.

The logical extension of this finding is that in the process of transitioning mandates between fund managers (and investment styles), there is potential for significant market impacts to occur within the prices of individual securities (incremental overlaps) in the portfolios. In these circumstances, unconstrained participants which operate outside of gatekeepers’ influence and the fiduciary finance industry, generally, may provide liquidity to pension fund trustees and other constrained market participants (discussed further in chapter 9). The potentially large but hidden economic costs flowing from mandate changes, therefore makes the closer scrutiny of specialist “transition managers” essential.

While this research has been confined to a large and representative sample of public-offer pension funds, similar institutional arrangements are employed in national provident funds (for example, Australia’s Future Fund, and those of Ireland and New Zealand). Like traditional pension funds, these government-sponsored investment structures rely upon gatekeepers to invest into financial markets using fund managers contracted on an “arm’s length” basis (considered desirable on economic and ideological grounds). These aspects are discussed further in chapter 9.

CHAPTER 8 – FINANCIAL FIDUCIARIES AND CORPORATE GOVERNANCE REFORM

8.1 Introduction

Concerns about standards of corporate governance have typically arisen in the aftermath of corporate failures and executive misdemeanours; not during periods of prosperity and investor euphoria. The infrequent incidence of corporate failures is therefore problematic: in many recent cases, the underlying causes of these failures could be more accurately attributed to fraud and negligence, and investor gullibility, rather than systemic defects in corporate governance or ethical standards *per se*. Further, Coffee (2004) has argued that recent corporate debacles could be blamed on “good” corporate governance measures which encouraged earnings management (notably premature accruals of income) and introduced “perverse” managerial incentive structures. He also blamed the passivity of professional “gatekeepers” such as institutional investors and financial analysts which ignored valuation concerns due to their commercial self-interests and relative performance fixation.

By virtue of their substantial shareholdings in those companies, and their ability to act more effectively than other shareholders, financial fiduciaries are expected to more actively exercise power over the boards of investee firms. Whereas financial fiduciaries traditionally became involved in corporate governance matters reactively, more recent trends in corporate governance reveal an increasing externalisation of internal processes, and the recasting of the corporation’s responsibilities to include a broader range of constituents. For example, Hawley and Williams (1997) have argued that financial fiduciaries owe a significantly broader responsibility of economic guardianship: as “universal owners” financial fiduciaries should be active in proxy matters and be responsive to the welfare of “stakeholders”. Camara (2005) has noted that institutional investors are more likely to use voting powers effectively and can overcome the significant disincentives faced by other shareholders; however, by doing so, they risk

compromising the economic rationale of their activism if their voting is motivated by socio-political rationales rather than the maximization of their beneficiaries' investment returns. Against this background, the existence of successful firms displaying non-conformance with corporate governance best practices may suggest that financial performance determines corporate governance structures, rather than vice-versa (MacNeil and Li, 2005).

The first part of this chapter briefly describes the origins and functional application of Australia's best practice corporate governance standards, and the methods used by financial fiduciaries to incorporate corporate governance standards into portfolio management. It discusses the theoretical context of the corporate governance problem, and the consensus of best practice measures which are suggested as effective in mitigating stakeholder concerns given the matrix of fiduciary obligations which are owed by the different actors.¹⁰⁶ This analysis reinforces the necessity of confirming the economic value added by best practice corporate governance structures, especially in light of the direct and indirect resources they consume. The second part of this chapter therefore examines the "good" corporate governance investment thesis using a unique research methodology. In contrast to previous studies which have sought to affirm the premise that good corporate governance results in improved performance of firms and higher investor returns, this study considers the reverse: whether "poor" governance firms which have not adopted the promulgated corporate governance best practices and are subject to substantial "insider" influence, *outperform* the market. This is the first study to employ this methodology. The final part incorporates the conclusions from the empirical findings, particularly in the context of the fiduciary duties owed by financial fiduciaries (such as pension trustees and funds managers), and corporate officers, and makes suggestions for future research directions.

¹⁰⁶ Boards and corporate officers are entrusted to maximise shareholders' returns but owe fiduciary duties to the firm, while pension fund trustees and institutional investors charged with the responsibility of maximising the investment returns owe fiduciary duties to the beneficiaries.

8.2 Functional application of Australia’s corporate governance best practices

8.2.1 Background

Australia has adopted a market-based response rather than a “black letter” regulatory regime to address corporate governance concerns within the wider community. The principal best practice corporate governance measures are exemplified by guidelines which apply to entities listed on the Australian Stock Exchange (ASX), however institutional fund managers acting on behalf of pension trustees, and the industry lobbies for trustees of large pension funds, had previously sought to encourage firms to adopt corporate governance best practices. Australia’s first efforts to formalise corporate governance practices were developed by IFSA, the industry association representing fund managers, which released the first edition of its “Blue Book” in 1985.¹⁰⁷

More recently, following high profile corporate collapses (One.Tel in 2000 and HIH Insurance in 2001), and a number of debacles in offshore jurisdictions, increased political pressure was exerted on regulators to move onto a more proactive footing. In August 2002, the ASX announced its proposal to formalise guidance on corporate governance best practices. It convened a broadly representative forum – the ASX Corporate Governance Council (ASX CGC) – which included institutional and personal investor groups and the corporate and professional lobbies, to address concerns about corporate behaviour and to restore investor confidence in the proper functioning of financial markets. In March 2003, the ASX CGC enunciated its best practice corporate governance guidelines: the *ASX Principles of Good Corporate Governance and Best Practice Recommendations*.

¹⁰⁷ These guidelines followed from a public campaign by fund managers which successfully forced a large retailing firm, Coles Myer, to disclose related-party transactions with its directors who were also significant shareholders and suppliers, and to restructure its board of directors in recognition of the potential conflicts of interest which arose from the firm’s commercial relationships with those directors.

These guidelines introduced a comprehensive disclosure regime for corporate governance practices within Australia's 500 largest listed firms. In common with the United Kingdom, the Australian system relied upon a "comply or explain" principle: adoption of the guidelines by issuers was voluntary, however, disclosures of non-conformance and explanations were mandated under the ASX listing rules (which include continuous disclosure provisions), commencing in the 2004 annual reports to shareholders.¹⁰⁸ The industry association representing trustees of large pension funds, the Australian Council of Superannuation Investors (ACSI), also released its best practice corporate governance guidelines for issuers in March 2003.

Whilst the ASX CGC guidelines represent a consensus of corporate governance best practices, the business community queried the economic value of these structures, citing increased compliance burdens, and the potential for expanded liability applying to corporate officers (Australian Institute of Company Directors, 2003; Coulton and Taylor, 2004). Following the introduction of the ASX CGC guidelines, a survey of 1,500 company directors drawn from firms both inside and outside the "top 500" stocks revealed that the majority of professional directors were concerned about government regulation if the ASX CGC guidelines were not adopted, however, few believed that they would enhance returns or investor confidence (Australian Institute of Company Directors, 2003). Analysis of early reporting trends under this guidelines has revealed considerable diversity in the form and quality of disclosures, attributable to the absence of explicit materiality criteria, suggesting that more prescriptive reporting of corporate governance practices may be necessary (KPMG, 2004; KPMG, 2005).

¹⁰⁸ Following a post-implementation review, the ASX CGC revised its guidelines with respect to the composition of audit committees scaling this back to the 300 largest entities. This change was made as smaller firms, which on average had fewer than five directors, and were unable to attract suitable candidates or found it was impractical to expand their boards. Amendments were also made to the corporate law which made it mandatory for CEO/CFO sign-off of financial statements showing conformance with accounting standards, effective from 1 July 2004.

8.2.2 Functional specification and application of internal governance structures

Australian issuers are subjected to three main prescriptions of corporate governance best practice. There exists considerable unanimity in the composition and functional application of corporate governance structures (as shown in tables 8.1 and 8.2) amongst these codes. These guidelines reinforce the primacy of board control over the firm, the necessity of independence in board leadership and composition, and the use of separate board committees to promote effective monitoring of executive discretion and decision-making.

From an issuer's perspective, although the IFSA and ACSI guidelines have been widely publicised, the ASX CGC guidelines remain the primary corporate governance standards because they apply to all listed firms in the Top 500, irrespective of their shareholders. For example, firms without significant levels of institutional investor ownership would not be required to respond to the ACSI and IFSA guidelines (which represent the trustees of pension funds and fund managers, respectively). Whilst the IFSA and ACSI guidelines outline the preferred corporate governance practices from the perspective of financial fiduciaries, only IFSA explicitly prescribes the exercise of voting power: interestingly, although ACSI represents the trustees of large pension funds, its guidelines do not provide direction in relation to the exercise of proxy powers or corporate governance actions generally.

Table 8.1: Key governance structures for issuers

Table 8.2: Key governance structures for financial fiduciaries

In Australia, the capacity of financial fiduciaries to influence corporate governance practices resides in the exercise of their voting power, and dialogue with issuers (IFSA, 2004: 9). Whilst Australian institutional investors have taken a high profile in initiating change and exercising power over boards, it is notable that offshore investors (holding approximately 41 per cent of the equity market versus Australian institutions controlling 25 per cent) potentially hold the balance of power for many firms. The extent to which offshore institutional investors vote their proxies, and thus drive corporate governance change, however, remains unclear.

The capacity of trustees as institutional equity owners to influence investee firms to adopt best practice corporate governance is subject to a range of legal considerations. First, as

Ali, Stapledon and Gold (2003) have noted, under the Australian superannuation regulations, trustees are not obligated to exercise their proxy voting power; rather, they must be able to demonstrate that adequate consideration has been given to the issues to be voted. Second, pension fund trustees – and frequently, their appointed fund managers who instigate corporate governance actions – must ensure that “free rider” benefits do not arise which would undermine their obligation to maximise the returns of their beneficiaries (as distinct from other shareholders) given any costs which are incurred. Third, financial fiduciaries which engage in private discussions with directors and managers of investee firms must also be mindful of not breaching the “insider trading” provisions of the corporate law which prohibit trading based on private information. Finally, concerted efforts with other institutional investors to reform corporate governance standards may be laudable, under the “shadow director” provisions of the corporate law, trustees may be deemed to be directors of investee firms, with the attaching responsibilities and personal liability (but not the perquisites) of formal officeholders.

The exercise of proxy voting is further complicated because large pension funds, pooled pension funds, and other collective investment funds, generally use custodians to record the underlying holdings of fund managers within what are termed “omnibus accounts”. These arrangements make it impossible for custodians to accept multiple instructions from fund managers for the purposes of attendance at company meetings where voting by show of hands. This drawback has been ameliorated to some extent by the IFSA guideline (11.15.4) which directs firms to ensure that all proxies are counted for contentious resolutions prior to company meetings and a poll used where the outcome of those resolutions is different if the decision was carried by a show of hands.

In the face of more recent concerns regarding standards corporate governance (especially excessive executive compensation outcomes), Australian pension fund trustees have

needed to resolve a practical issue: how to demonstrate the prudent exercise of their voting powers which can address the concerns of beneficiaries and other stakeholders regarding the management of investee firms, while providing commercially defensible, competitive returns. As noted in chapter 2, because most trustees employ fund managers (rather than investing in markets directly), it has become increasingly common for trustees to direct their fund managers to vote their proxies and to report on these activities to beneficiaries. In response to demand from trustees, corporate governance engagement and proxy voting advisory services have also been developed. ACSI has introduced a Voting Alert Service which monitors the corporate governance practices of Australia's largest companies to aid pension fund trustees regarding corporate governance engagement and proxy voting decisions. The investment management arm of the Westpac Banking Corporation (itself an ASX-listed firm) offers a "Governance Advisory Service". Trustees can use this service to communicate views on corporate governance and other topical matters with investee firms: these service providers are employed in addition to the conventional fund managers which manage the underlying portfolios and have more routine interaction with investee firms.

8.3 Background literature

8.3.1 Agency concerns and socio-legal features underlying corporate governance

The essential concern of corporate governance arises from the separation of ownership and control in modern public corporations. Early legal scholars and financial economists (e.g. Berle and Means 1932, Jensen and Meckling 1976) have argued that agency problems are expected to arise between shareholders and managers due to the separation of ownership and control, especially in the context of diffuse corporate ownership. Under this theoretical prescription, managers will generally exercise full control and are expected to pursue self-serving activities to the detriment of shareholders' interests. La Porta *et al.* (1998) have hypothesised that legal protections enforcing shareholder rights are critical to effective corporate governance. Shleifer and Vishny (1997) have argued

that legal protections of investors' rights alone are not sufficient to mitigate agency concerns. Bebchuk (2005) has proposed that shareholders be empowered to intervene in major corporate decisions (rather than merely approving board-initiated proposals on an *ad hoc* basis): he argues that the existence (rather than exercise) of increased shareholder power would induce management to act in the owners' best interests. Fama and Jensen (1983) have argued that agency costs are reduced by institutional arrangements that separate decision management from decision control: they propose that the board of directors is a primary corporate governance structure because it acts as an oversight of managerial and firm performance, and limits the discretion of firm managers.

8.3.2 Ownership structure and corporate governance

Ownership structure is also considered to be an important feature relevant to corporate governance. With increasing levels of institutional ownership of equities, the research literature shows that large shareholders who have sufficient incentives to monitor and control managerial activities, may limit agency problems and provide shared benefits of control for all shareholders. Demsetz and Lehn (1985) have noted that combining ownership and control is likely to mitigate managerial expropriation. The research literature exploring the influence of ownership concentration (blockholders) has generally revealed that it has apparently benign effects on firm value. There is little discernable evidence that blockholders have deleterious effects on small or diffuse shareholders, especially where a large shareholder is active in firm management (Holderness, 2003).

Whilst institutional investors have become more prominent as blockholders and brought popular expectations of corporate governance reform and performance improvements, the research literature has also documented that ownership by "insider" blockholders such as family founders, directors and executives, has been increasing. Holderness, Kroszner and Sheehan (1999) noted that the prevalence of insider block ownership in US companies rose on average from 13 per cent to 21 per cent between 1935 and 1995 and they

estimated that insiders owned 20 per cent of the issued capital of publicly-listed firms. Anderson and Reeb (2003) found that founder and family-controlled firms constituted over 35 per cent of the S&P500 Industrials, and approximately 18 per cent of the total outstanding equity of these firms. Insider blockholder ownership *should* trigger agency concerns given that insiders have close proximity to decision making processes, the capacity to extract private benefits at the detriment of other stockholders, and/or to make sub-optimal corporate investments (Demsetz, 1983; Fama and Jensen, 1983; Shleifer and Vishny (1997). Burkhart, Punanzi and Shleifer (2003) have suggested that founder-family control is less desirable without adequate safeguards existing to limit wealth expropriation by minority shareholders.

Given this context, it is particularly interesting that positive associations between insider ownership/control and firm performance are found in the literature. Jensen and Meckling (1976), Fama and Jensen (1983), Morck, Shleifer and Vishny (1988) have found that insider ownership tends to be accompanied by increases in firm value measured by Tobin's "q" (a ratio of a firm's market value of equity plus book value of debt divided by its total assets) however this relationship is not linear across ownership levels. McConnell and Servaes (1990) found firm value (also measured by Tobin's q) increased as share ownership became concentrated in the hands of corporate officers, and a significant positive relationship between firm value and the proportion of shares held by institutional investors, but did not rule out management entrenchment effects.

Craswell, Taylor and Saywell (1997) examined the ownership structure for 349 Australian firms between 1989 and 1989 and found a weak relationship between insider ownership and corporate performance. More recently, Anderson and Reeb (2003) found that the financial performance and stock market returns of 141 large US founder/family-controlled firms was superior to firms with diffuse ownership structures, suggesting that founder-shareholders and insider management reduced agency costs and improved

corporate efficiency, rather than adversely affecting the rights of minority owners. Their study also noted that financial markets rewarded firms more highly which appointed an “outsider” CEO (unaffiliated with founder-family), however, accounting measures of financial performance were higher where an “insider” CEO (affiliated with the family-founder shareholders) was appointed.

8.3.3 Empirical evidence on the value-added by corporate governance measures

The fact that corporate governance best practice measures have been incorporated into industry guidelines (and received tacit intellectual support) creates a natural expectation of issuer conformance. A number of studies have therefore attempted to complete a logical first step: to validate the premise that “good” governance structures translate into economic value-added. At the outset, therefore, it is somewhat troubling that the available empirical research literature does not support any nexus between common good corporate governance structures and improved financial performance and/or higher shareholder returns.

Bhagat and Black (2002) examined 934 large US firms and found an inverse correlation between board independence and financial performance, suggesting that the conventional wisdom of mandating independence in board composition may impair firm’s performance. Lawrence and Stapledon (1999) also found no correlation between board composition and firm performance in Australia. Regarding the concerns about the concentration of executive power and excessive board influence arising from CEO-chairman duality, Brickley, Coles and Jarrell (1997) studied 661 US firms in 1988 which combined the roles of CEO and chairman and found that these firms outperformed those which divided these roles. Previously, Yermack (1996) had analysed board structure and firm performance and found an inverse correlation between board size and firm value, and some evidence that firms were more highly valued when the CEO and chairman positions were separated. More recently, an event study of UK firms which had

announced the separation of these previously combined roles (in conformance with the Cadbury Code of corporate governance) did not find any evidence of positive share price reactions (Dedman and Lin, 2002). Vafaes and Theodorou (1998) also failed to find any association between the independent composition of audit committees and improved financial performance in the United Kingdom.

8.3.4 Modes of corporate governance activism by institutional investors

Hirschman (1970) provided a broad framework for activism by institutional investors dissatisfied with investee firm performance (exiting their investment, voicing their concerns and seeking change, or retaining investments on expectations of consequential performance improvements). Drucker (1976) stipulated that institutional investors should sell the stocks of firms if they were dissatisfied with performance. As noted in the introduction, however, corporate governance concerns are not necessarily correlated with performance, and the pressure to reform corporate governance structures is a relatively recent phenomenon. Nonetheless, the continuing trend to institutionalisation of equity ownership has provided financial fiduciaries with the capacity to query and influence the corporate governance structures adopted by investee corporations. By virtue of this ownership, the question appears to have become *how* – not *if* – financial fiduciaries and fund managers should be involved in corporate governance actions and reform efforts. There has been considerable debate regarding the appropriate role of pension trustees and their fund managers as monitors of corporate officers and the operations of investee firms. Monks and Minow (1996) have asserted that trustees possess no specific expertise as owners, much less as monitors of corporate managers and directors: they advocate the appointment of specialised professionals to undertake this task.

Whilst undertaking corporate governance reform actions is often suggested as an essential part institutional investment in both practitioner literature and popular forums, perhaps the most significant obstacle to activism is presented by the precepts of modern financial

theory which underpin generally accepted standards of fiduciary investment. As noted in chapter 3, in the process of “modernising” the prudential investor standards in most jurisdictions have adopted and codified a key theoretical exemplar of the capital market theory paradigm: “informationally-efficient” markets. The notion of “trusting the market” has achieved legal acceptance and (as discussed in chapters 3 and 6) index-tracking strategies which offer low operating costs, are therefore expected to provide superior investor outcomes than “active” strategies.

This has effectively reversed the traditional onus imposed upon financial fiduciaries to undertake active management and to exercise judgement in portfolio selections, creating a seemingly inexorable trend toward index-tracking in institutional portfolios. Several authors (Porter, 1997; Carleton, Nelson, and Weisbach, 1998; Short and Keasey, 1997) have noted the increasing proclivity of institutional investors to employ index-tracking strategies which this constrains the capacity of institutional investors to dispose large portfolio positions due to direct execution costs and indirect market impacts. The reality that many institutional investors are largely “captives” has seen modes of activism evolve which emphasise voicing concerns regarding performance and corporate governance issues (rather than the “exit strategy” suggested by Hirschman, 1970). In context of indexing strategies, Koppes and Reilly (1995) have suggested that trustees employing portfolio indexation use corporate governance screening techniques to monitor the performance of index portfolio constituents, and thus, discharge their fiduciary duties.

The consensus of empirical evidence indicates that institutional shareholders are effective in targeting poorly performing firms and sponsoring changes to corporate governance structures, however, the evidence linking these changes to positive economic outcomes is equivocal. As a consequence, the economic efficacy of institutional investor activism has been undermined in both the US and UK (Karpoff, 1998; Gillan and Starks, 2003; Dedman, 2002). Karpoff, Malatesta and Walkling (1996) found that proposals initiated

by institutional investors were successful in changing corporate governance structures, however, they had little effect on the long-term share values, profitability, or top management turnover of the firms targeted. Gillan and Starks (2000) also found that coordinated proposals sponsored by institutional investors were more likely to gain support versus those of individual shareholders, however, the impact of these changes on share prices was minimal. Wahal (1996) found no evidence of significant long-term improvements in either stock prices or accounting measures of financial performance after firms were targeted by large “activist” pension funds on governance-related proxy proposals in the late 1980s and 1990s. Song and Szewczyk (2003) examined the performance impacts on firms which were publicly targeted in a coordinated manner by major US pension funds (via the Council of Institutional Investors’ “Focus List”) but were unable to attribute any incremental performance effects from this institutional activism. Faccio and Lasfer (2000) have noted that while UK pension funds actively promote corporate governance measures, they are ineffective monitors: the firms in which they own large stakes are not more likely to conform to best practice internal corporate governance structures including board composition and removal of chairman/CEO duality.

8.3.4 The economic efficacy of “good governance” as an investment strategy

While a multitude of modes of corporate governance activism exist, fund managers have devised investment strategies which use corporate governance ratings. These fiduciary products satisfy trustees’ demands: they wish to actively engaged in improving corporate governance standards, and/or to offer their beneficiaries increased investment choices. As discussed above, since the empirical evidence regarding the value added by corporate governance measures is equivocal, it is not surprising that research examining the linkages between corporate governance ratings (which form the basis of “good” governance investment strategies) and economic outcomes, is similarly inconclusive.

More recent studies have bypassed the more fundamental question of the economic value of best practice corporate governance structures to examine if “good governance” when used as the basis of an investment strategy, provides value added compared to a “market” portfolio or peer firms. Gompers, Ishii and Metrick (2003) analysed the relationship between corporate governance provisions, shareholder returns and firm value for 1,500 US firms throughout the 1990s. The authors constructed a “long-short” strategy (which purchased the stocks of firms with the strongest shareholder rights and sold those which were assessed as having the weakest shareholder rights) based on corporate governance ratings. They found that this strategy generated significant abnormal shareholder returns, thus affirming the benefits of investing according to corporate governance measures. Using a similar methodology – albeit over a shorter time horizon – Bauer, Guenster and Otten (2004) examined the performance characteristics of European and UK firms and found a positive relationship existing between good governance measures, firm value and shareholder returns. However, in contrast to the earlier findings of Gompers, Ishii and Metrick (2003) the authors found an inverse relationship with profitability. Linden and Matolcsy (2004) examined the financial performance and shareholder returns of Australia’s largest 250 companies stratified according to their corporate governance ratings. The authors did not find any relationship between economic value added and corporate governance ratings: they also noted that these ratings assessments were not reliable predictors of future performance but were generally positively correlated to firm size (larger firms had higher ratings and vice-versa).

Like all other active investment strategies (and as discussed in detail in chapter 6), the empirical validation of corporate governance portfolio strategies apparently cannot surmount the charge levelled by proponents of efficient markets: that active strategies are economically sub-optimal (Gold, 2004). Aside from this more technical hurdle, corporate governance indexes (and index-tracking products generally) cannot be expected to deliver material performance differentials relative to market benchmarks, because they typically

employ only marginal up or down weightings of constituents relative to their weightings in conventional (value-weighted) market indexes.

8.3.5 Corporate governance and modern pension economics

The willingness of investment fiduciaries to participate in corporate governance actions and reform can also be affected by the significant competitive pressures operating within the fiduciary finance industry. Whether undertaking investment selections internally or employing external fund managers, pension fund trustees are concerned with demonstrating a prudent investment management process; however, increasingly it is portfolio performance outcomes which provide the point of differentiation between otherwise largely fungible financial products. As discussed in chapter 2, from a business (rather than theoretical) perspective significant pressure is exerted upon financial fiduciaries (which are often commercial entities in business for themselves) to ensure that their portfolio returns are competitive with market indexes and peer funds which provides growth in scale of funds under management and profitability (Ali, Stapledon and Gold, 2003).

Financial fiduciaries must therefore carefully consider any costs associated with corporate governance actions because these add overhead costs (and thus directly and adversely affect profitability), or to reduce the beneficiaries' returns (where these can be passed on to client accounts). These considerations do not necessarily create significant agency conflicts between beneficiaries and trustees and/or between trustees and their appointed fund managers, however, because the structure of their investment mandates typically emphasise *relative* rather than *absolute* targets for returns and volatility, and thus agency concerns are also "contracted out" relying on the premise of market efficiency.

8.4 Empirical analysis of “poor” corporate governance firms

8.4.1 Sample construction and definition of proxy variables

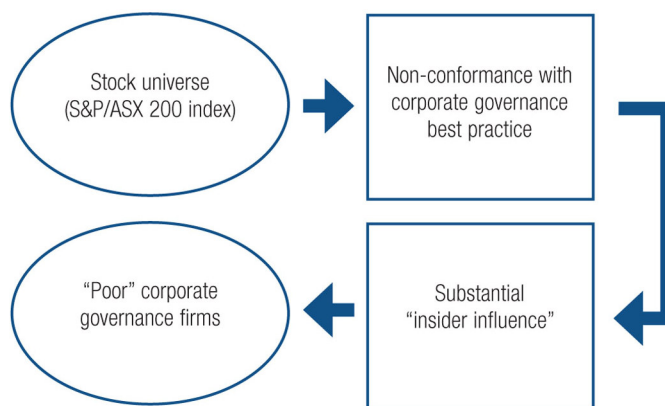
In contrast to prior studies which have sought to validate a nexus between good corporate governance structures and improved economic returns, this study examines the investment thesis using a principle of mutual exclusion. By specifically selecting a portfolio of “poor” corporate governance firms, it is possible to measure their financial returns and operational performance compared to an objective benchmark: a broad and representative market index of all Australian stocks. Given that this testing methodology deliberately targets poor corporate governance, it should provide valid generalisations regarding the economic efficacy of popular corporate governance structures in terms of investors’ returns and operational performance relative to the “market” average.

The design of this study seeks to incorporate both popular perceptions and theoretical perspectives regarding heightened corporate governance risks which are likely to be faced by minority and dispersed shareholders where “insiders” (founders, founders’ families, executives, and other related parties) hold substantial ownership positions and/or managerial control (e.g. McAdam (2005)). As noted in the literature above, from an agency perspective, the presence of significant insider ownership is expected to heighten corporate governance risks due to the capacity of management and other insiders to influence decision making and/or to extract economic benefits which are not available to other shareholders and financial stakeholders.

The construction of the sample of “poor” governance firms therefore requires two separate and additive filters (shown schematically in Figure 8.1). In the first stage of filtering, a positive screen is applied to include constituents of the leading institutional Australian equity benchmark (the S&P/ASX200 index) which display non-conformance with key best practice corporate governance standards (as evidenced by their representation in various codes applicable to Australia issuers shown in table 8.1). In the

second stage of sample construction, a further positive screen is employed to include only those firms which exhibit substantial insider ownership. The combination of these screens is designed to provide a representative sample of firms exemplifying poor corporate governance standards.

Figure 8.1: Poor governance screening factors



Source: Gold (2006b)

The first stage of filtering involves identifying firms disclosing non-conformance with the ASX CGC guidelines which become mandatory under the ASX Listing Rules from 1 January 2003. Using data extracted from the Institutional Shareholder Services (ISS) Australia's proprietary corporate governance analytics database, non-conformance with the ASX CGC guidelines was analysed using the first full year of mandatory disclosures for all firms in the 2004 annual reporting season. As shown in table 8.3 below, this analysis confirmed a high level of full conformance (nearly half of all firms had full conformance) amongst Australia's largest and most liquid stocks.

Table 8.3: Issuer conformance with the ASX CGC guidelines

In accordance with the agency theoretic perspective, firms which have not adopted the recommended internal corporate governance structures directly associated with the apex of corporate power (the four most frequent areas of non-conformance as shown in table 8.3) are selected; namely, firms which do not have independence in *board composition* (firms not exhibiting a majority of independent directors and/or not possessing an independent nomination committee) and *leadership* (firms with non-independent chairpersons and/or duality in CEO-chair roles). Non-conformance with these key corporate governance structures is expected to impede the effective functioning of the board, and to introduce potential (or actual) interference in decision management and control, and provide the greatest potential for entrenchment by directors and/or executives. Most significantly, non-conformance with these key structures is likely to result in comparatively low ratings assessments as provided by corporate governance consultants. The first screen identified a cohort of 36 firms.

The second phase of screening specifically identifies firms which have substantial levels of insider ownership levels (to reveal firms affected by substantial “insider” influence) held by founders, their families, executives and related parties (including trusts). Under Australian securities regulations, “substantial” shareholdings are deemed to be holdings greater than 5 per cent of issued capital which must be disclosed by firms. However, because legal ownership of substantial shareholdings is often recorded by legal nominees

and custodians, data was extracted from the ISS database which provided a “look-through” analysis of substantial shareholding disclosures based on beneficial, rather than legal ownership.

As shown in panel A of table 8.4, consistent with trends previously identified in offshore markets (Anderson and Reeb, 2003; Holderness, 2003) this analysis found that substantial insider block ownership was evident in 48 of Australia’s largest 200 publicly-listed firms (24 per cent, or approximately a quarter of the constituents of the market benchmark, by number). Overall, as panel B shows, insider ownership represented 16.6 per cent of the market capitalisation of the S&P/ASX200 index, and 15.5 per cent of the total value of all firms listed on the ASX, respectively.

Table 8.4: Insider block holder ownership data for Australian firms

Applying the second positive screen for insider influence, a sample of “poor” governance firms was refined to exclude firms which have been in operation for less than three years and which would potentially affect the robustness of the results. Since the ASX CGC guidelines were introduced relatively recently, it was also confirmed that none of the “poor” governance firms had previously adopted good corporate governance structures, or undergone significant changes with respect to insider influence. The screening process resulted in the construction of a portfolio of 18 poor governance stocks – a statistically significant number given that the market benchmark comprises 200 securities (see appendix 8 for a listing of the PGI constituents and their descriptive statistics).

8.4.1 Analysis of financial performance

Using the sample of poor governance firms (shown in table 8.5) a “Poor Governance Index” (PGI) was computed which measured the performance of an equally-weighted portfolio comprised of these stocks. The PGI was re-balanced at the end of each month to mitigate the distortionary effects from individual firms on the overall performance results (as per the methodology of previous “portfolio” studies). For the purposes of this analysis, and in accordance with best practice, total returns (i.e. returns including price appreciation/depreciation and dividends) were measured.

The performance of the PGI was compared with the leading institutional Australian equity benchmark (the S&P/ASX200) using monthly data for the five years ended 30 June 2005. This extended analysis period was selected for its statistical robustness and because it incorporated a period of heightened corporate governance concerns. As shown in figure 8.2 and table 8.5, the PGI substantially out performed the market index over the long term, with high levels of performance persistence, and lower “systematic” risk.

Figure 8.2: The cumulative gains from a “poor” governance portfolio

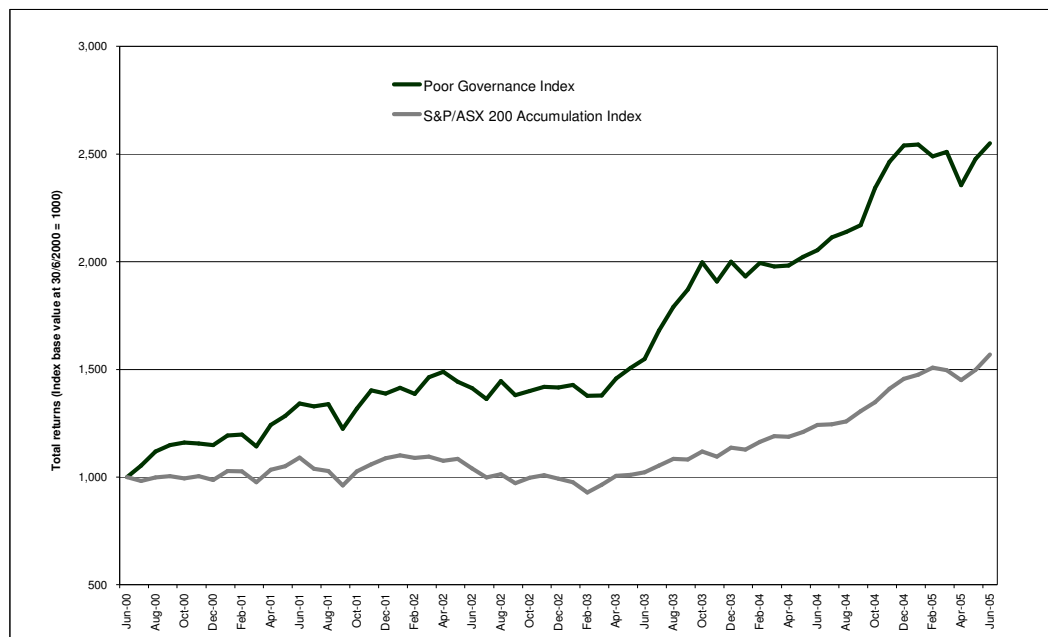


Table 8.5: Performance analysis of the Poor Governance Index

This financial performance study using an extended time series reveals that the sample of poor governance firms significantly outperformed the broad equity market. The portfolio of these firms also exhibited lower risk than the market (proxied by beta), although the variability of the PGI's returns was higher. Bearing in mind that the sample selection used criteria shared with corporate governance ratings assessments – and as a result, these firms would typically be excluded from a model “good” corporate governance portfolio – these findings indicate that a “long-only” portfolio strategy constructed on this basis would have resulted in significant opportunity costs in terms of foregone returns and portfolio diversification when compared with the market portfolio. Using a methodological principle of mutual exclusion, it is posited that the “good” governance investment thesis is not supported by these empirical findings.

8.4.3 Analysis of operational performance

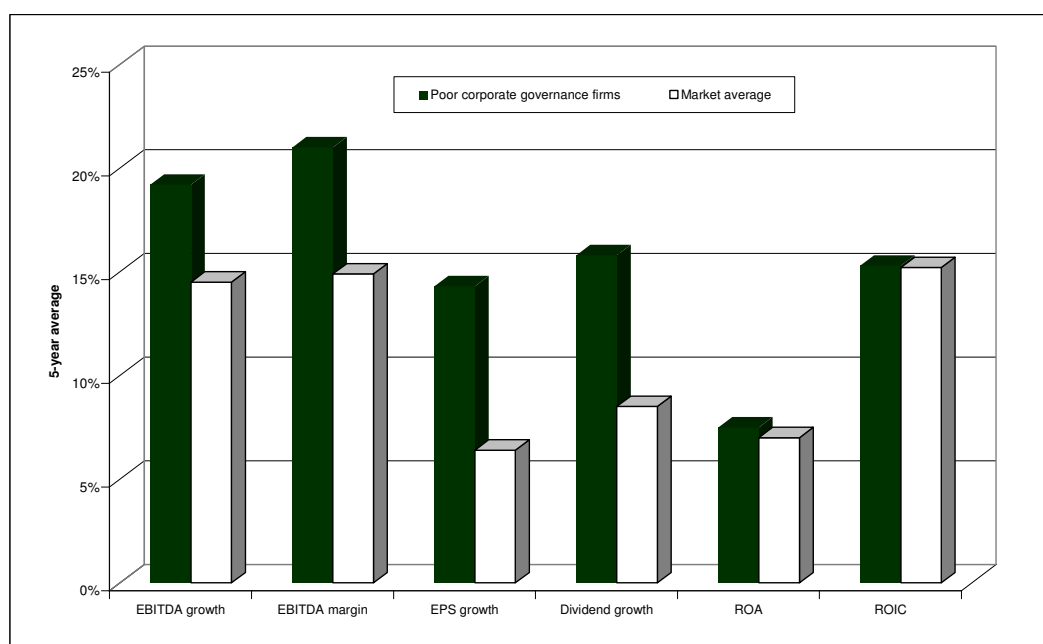
An analysis of the operational performance for the cohort of “poor” corporate governance firms was undertaken which focused on metrics which excluded the distorting effects of market valuation (Demsetz and Villalonga, 2001). In contrast to other recent studies

(Gompers, Ishii and Metrick, 2003; Bauer, Guenster and Otten, 2004; Anderson and Reeb, 2003) therefore, Tobin's q was not used as a proxy of firm value. Instead, operational performance metrics (as shown in table 8.6) considered to be most insulated from accounting adjustments and largely independent of financial structure, were used. Accordingly, earnings before interest, taxes, depreciation and amortisation (EBITDA) were used as the main proxy of operating performance.

As with the financial performance study, the performance of "poor" governance firms was compared with a "market average" to determine the former's relative performance. However, as published financial aggregates were not available for the "market", these were created using a large sample of 305 publicly-listed Australian firms which had reported revenue exceeding \$100 million and had positive earnings before interest and taxes (EBIT). This created a stringent benchmark for comparison purposes because it excluded smaller firms and those with poor underlying profitability.

As shown in figure 8.3 and table 8.6, the analysis of operational performance reveals that "poor" governance firms exhibit superior operational performance and capital efficiency than the market average. Over an extended analysis period incorporating five fiscal years of accounting data, poor governance firms showed stronger growth in underlying cash flow (EBITDA), normalised earnings per share, and dividends. Significantly, the poor governance firms delivered significantly higher operating profit margins (EBITDA margin), while their capital efficiency (ROA and ROIC) was also higher than the market average.

Figure 8.3: Selected comparative operational performance ratios



Interestingly, from an agency perspective, poor governance firms generated far higher rates of growth in dividends than the market; however, this was achieved as a function of superior earnings levels rather than dividend policy (a higher payout ratio).

Finally, as an expected corollary of results of the financial performance analysis, the market valuation of poor governance firms (gross cash per share/price and enterprise value/EBITDA multiples) shows investors' willingness to pay a premium for these firms versus the broader equity market. This suggests from the shareholders' perspective, excluding poor governance firms from the market portfolio would result in lower economic returns. In summary, the empirical analysis of operating performance does not support the "good" governance investment thesis.

Table 8.6: Key ratios of operating and financial efficiency

8.5 Conclusions and avenues for further research

Australia's best practice corporate governance standards exemplify a high level of formalisation. The analysis of early reporting trends reported in this chapter revealed high levels of conformance with these structures by Australia's largest firms. However, a significant number of firms – especially those exhibiting substantial insider influence – have adopted alternative corporate governance structures.

Consistent with trends witnessed in other jurisdictions, financial fiduciaries and institutional investors in Australia have shown an increased willingness to engage proactively with issuers to encourage issuer conformance with corporate governance best practice, despite the existence of several significant practical and legal obstacles. A mistaken presumption which appears to have been made is that “poor” corporate governance is economically undesirable: the body of available empirical evidence does not support a positive association between “good” corporate governance measures and economic value-added, nor does it support the economic efficacy of activism by institutional investors to reform corporate governance structures of investee firms.

Studies of portfolio performance (as used in this chapter) which examine the performance of corporate governance as the foundation of a practical portfolio investment strategy (as distinct from broad tests of the correlations between good corporate governance and improved financial performance) provide the most direct and relevant test of its economic efficacy. In this context, this study deliberately selected firms which had “poor” corporate governance structures and found that they delivered higher investment returns for portfolio investors compared to the broad stock market index, and their operational performance was superior when compared to a broad (and stringent) market average. On the basis of these results, it is concluded that the “good” corporate governance investment thesis is not validated in Australia. These results add to the overall consensus of the existing research literature which has questioned the economic value of popular corporate governance measures. These findings also call into question the efforts by financial fiduciaries and other stakeholders, to exert pressure on firms to adopt corporate governance best practices. Trustees which employ active investment strategies (whose viability generally remains subject to direct challenge by academics and pundits) to make security selections based on corporate governance criteria, may expose their beneficiaries to sub-optimal portfolio outcomes. When combined with the increased investment management charges usually associated with these “themed” fiduciary products, these findings indicate that trustees should carefully consider any decision to engage in “fiduciary activism” given the prudential investment standards and regulations governing pension funds.

From the issuers’ perspective, these findings also have significant ramifications: given the fiduciary duties owed to the firm by corporate officers, objective justification of expenditure incurred to adopt these measures is necessary. An important empirical issue remaining, therefore, is the quantification of the direct costs and indirect effects on corporate investment decisions which are associated with the conformance with best practice corporate governance guidelines.

CHAPTER 9 – FIDUCIARY FINANCE AND THE PRICING OF FINANCIAL CLAIMS

9.1 Introduction

The paradigms of investment theory have attempted to solve a potentially unsolvable riddle: the prospective prices of securities traded in financial markets. In reality, financial markets operate within a social context. Price discovery and the transactions of market participants result from motivations and behaviours which are not necessarily determined by rational economics. Accordingly, it is not surprising that a large gulf remains between the existing paradigms of investment theory and *useful* (i.e. universally applicable) models of investor behaviour and asset pricing.

As noted previously in chapter 4, the formative paradigms of financial economics have developed theories and models of investor behaviour which have relied upon restrictive assumptions and probabilistic verification procedures, but have failed to provide any predictive models of notable success. Despite this, these theories remain in an unsatisfactory state, neither proven “scientifically” nor formally refuted: for example, as discussed in chapter 5, the CAPM has even been considered as being “untestable”.

Heterodox theorising, whilst explicitly acknowledging the importance of real investors’ foibles in asset pricing, has not provided any substantive models which address modern fiduciary products and institutional investment strategies. Notably, Shleifer (2000) has opined that the explanations provided by the behavioural finance paradigm

...require a model of what investors think and do. How do they assess risk? How do they forecast growth? When they invest other people’s money, what rules and guidelines do they follow? (p. 183).

Importantly, amidst this intellectual dissonance, agreement *does* exist about the *source* of economic returns. For example, even within the active versus passive debate (as discussed in chapter 6) where proponents occupy polar extremes, there is tacit agreement that returns emanate from long run earnings, cash flows and income distributions which

are derived from firms' investments in the real economy. The discipline's theoretical conjectures, therefore, have focused upon how investors *predict* returns and *access* these returns through investment strategies.¹⁰⁹ Arguably, therefore, in terms of providing precepts for the accurate identification of returns within firms and the broader economy, it would appear that little advancement in the "science" of investing has been achieved since the normative methods of "intrinsic valuation" and "portfolio analysis" were formalised in the 1930s and 1950s, respectively.

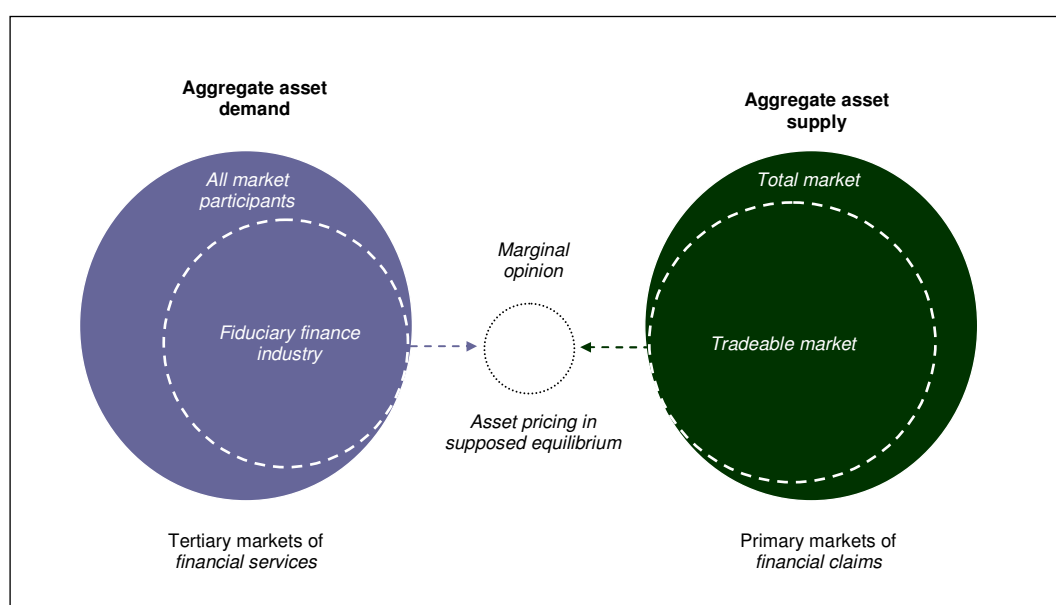
The definition of investment expounded in chapter 3 has acknowledged that investment is an applied activity with only a single dimension – generating wealth from a portfolio of financial claims. This definition permits closer scrutiny of outcomes (or the *ends*) – rather than the modes and processes (the *how*) – of investment, and thus, the fundamental forces which shape this activity. Existing research paradigms which have employed a positive economics methodology *have* emphasised pricing outcomes; however, in effect, they have attempted to "reverse engineer" asset pricing relationships and the motivations of market participants from the entrails of transactions. These research efforts have typically relied upon aggregated data and arbitrary measurement periods, both aspects which are unlikely to yield deterministic constants or meaningful relationships, and could otherwise be confirmed more readily from direct observations.

In real world practice, as depicted schematically in figure 9.1, security pricing occurs from the interaction between aggregate asset demand (including the significant flows of capital aggregated from the tertiary markets of fiduciary finance), and changes to the total stock of tradeable financial claims. Thus, a conceptual approach to investment logically must re-focus attention on the role of marginal opinion in supposed equilibrium (as elucidated by Williams, 1938).

¹⁰⁹ As discussed in this thesis, these pseudo-scientific efforts afflicted by measurement errors, mistaken generalisations, and flawed inductive arguments, have also created synthetic reasoning rather than real knowledge about investment practices.

This thesis provides an enriched understanding of the fiduciary finance industry's endogenous forces (including investment rules and gatekeepers which govern fiduciary products) from which useful models of security pricing can be informed by direct observations of the various participants in financial markets.

Figure 9.1: A schematic of security pricing in supposed equilibrium



Due to its size and institutionalised funding systems, fiduciary finance is undoubtedly a dominant source of demand for financial claims; however, from an investment perspective, understanding the prerogatives of financial fiduciaries and pre-empting their actions is of principal importance. This conceptual approach encourages scrutiny of *all* participants in the financial markets and the degree to which there is confluence in their goals and their capacity to influence marginal opinion. Determining which consensus exists amongst all market participants with regard to their respective investment prerogatives (described in chapter 3) is critically important because this convergence translates into self-fulfilling pricing effects. Also, as noted in chapter 3, the sophistication fiduciary finance has prompted the development of market indexes which directly affect the financial markets (namely, tradable versus actual market capitalisation) and their disaggregation according to valuation and size characteristics (i.e. investment styles).

This conceptual approach does not propose any substantive improvements to the methods used to identify and predict future returns at their point of *formation* (i.e. within economic sectors and firms). Also, it does not incorporate exogenous (or “shock”) events which are remain beyond its purview (but can have dramatic effects on security pricing). Instead, it integrates the knowledge of the fiduciary finance industry developed in this thesis, particularly viewed through the lens of the gatekeepers which are important influencers of marginal opinion.

The remainder of this chapter is structured as follows. The first part provides a brief discussion of the methodological and practical precepts which have guided the formulation of this conceptual approach. The second part suggests a range of focused research areas which are expected to yield meaningful models for investment purposes. The final part summarises the conceptual approach expounded in this chapter.

9.2 Requisite tenets of a conceptual approach for pricing financial claims

An important and misguided presumption made by existing research is that security pricing can be studied without reference to the sources of capital and funds flows for financial markets. Further, heavy reliance has been placed upon inductive generalisations derived from studies of selected market participants and the outcomes of their investment strategies (e.g. surveys of pension funds) or particular asset-pricing phenomena (e.g. performance of IPOs). By contrast, this conceptual approach explicitly acknowledges the economic significance of fiduciary finance and the endogenous effects emanating from this industry’s institutional structures which are expected to have direct effects on security pricing.

9.2.1 *The fiduciary finance food chain and investing rules*

In chapter 2 of this thesis, it was explained that the fiduciary finance industry manufactures discrete investment strategies – transparent “pass-throughs” with asset-linked economic payoffs – which are designed to provide investment solutions demanded by distributors and the ultimate consumers. Investors who subscribe to fiduciary products therefore substitute their individual financial objectives for a generic investment strategy. As noted in chapter 3, the *business* of fiduciary finance necessitates specific revisions to the conventional assumptions about investment as they apply uniquely to financial fiduciaries.

Chapters 6 and 7 also explained that the process of continuous performance measurement applied by the industry’s specialist monitors (gatekeepers) and used internally by fund managers, ensures that product portfolios are managed in close alignment with their stated investment objectives. The aggregation of cash flows for investment in financial markets, therefore, is a product of the fiduciary finance industry’s food chain: a highly competitive and regulated environment.

The principal investment function of fiduciary finance can therefore be viewed as ensuring that the assets of fiduciary products are managed according to predetermined investment policies. These practical rules (which form the economic bargain between the investor and the financial fiduciary) explicitly define the investment process, and govern investment choices according to specific constraints regarding investment style (e.g. active or passive), allowable judgements regarding asset class exposures, and authorised securities. It can be determined that the industry’s investment promises, portfolio selections, and ultimate outcomes, are referenced in the first instance according to stated investment policies, not putative considerations or the assumptions of economic orthodoxy.

For financial fiduciaries whose remuneration is pre-determined (and usually charged on an *ad volarem* basis), their business objective is to deliver competitive (i.e. relative) performance outcomes, rather than absolute returns. Thus, the operation of the fiduciary finance industry results in a stock of what can be termed “constrained portfolio capital”: differing constraints depend on specific universes of financial claims (e.g. as defined by stock market indexes) and/or the portfolios of peer products. Additionally, given concerns regarding the deleterious economic effects of excessive portfolio turnover, most fund managers are dissuaded from taking “material” portfolio positions against the market because these deviations are subjected to close scrutiny even over short time horizons due to the industry’s regime of continuous performance measurement. Rather than making significant judgements regarding prospective returns of financial securities or asset classes, therefore, financial fiduciaries are engaged with competitors within the confines of an apparently “zero sum” game where competitive performance becomes the highest commercial priority.¹¹⁰

Fiduciary finance, however, appears to be a “positive sum” game because new cash flows are continually garnered from investors in the tertiary markets, provided that the performance of fiduciary products remains commensurate with their specifications. The positive sum nature of the industry is enhanced by net funds inflows which are “guaranteed” by government regulations which have made pension contributions compulsory for most of the working population. Discretionary cash flows are also collected from customers by via automatic savings plans and salary deductions, which form part of the service proposition offered by fiduciary products. Overall, the fiduciary finance industry’s capacity to source positive cash flows creates demand for financial claims which generally persists irrespective of the losses experienced by investors

¹¹⁰ After the industry’s expenses (which are effectively hidden as deductions from NAV) are taken into consideration, however, it is a “negative sum” game.

remaining in the system, and those withdrawing their funds from fiduciary products. Therefore, while the fiduciary finance system continues to create positive funds flow momentum, it will support security pricing independently of orthodox theoretical assumptions (regarding investor utility, risk-aversion, and rational expectations).¹¹¹

9.2.2 *Probability and achieving investment success*

Previous research efforts have employed probability extensively to both *define* and *verify* theoretical conjectures. However, the significant pitfall of this approach is that resultant theorising depends on a lattice of premises and inductions often derived from probabilistic relations which may be prone to collapse at any time. However, the universal definition of investment expounded in chapter 3 of this thesis provides a simplified and more utilitarian basis for scrutinising the outcomes of various market participants without any recourse to *a priori* assumptions of knowledge, skill, or that security price formation and portfolio transactions must depend upon specific asset pricing constants (i.e. deterministic but unspecified relationships). This permits objective theorising from an arbitrary and desirable perspective: that all market participants possess an equi-probable opportunity of being “successful” in investment.

This “indifferent” [and unbiased] approach avoids misconceptions about the respective roles played by different market participants in security pricing: it does not implicitly assume that institutional investors possess innate advantages versus other participants (including individuals).¹¹² This is not an unreasonable approach given that success in

¹¹¹ In practice, security returns and product formations are causally interrelated: from the fiduciary’s perspective, the development of a marketable and profitable product will typically be predicated upon an attractive performance record from the underlying assets/markets which will induce demand from “return chasing” investors.

¹¹² Within the literature, it has been noted that individual investors are quickly reminded of their decisions because of both their direct involvement with each the transaction decision, and the material impact that each decision can have on their overall wealth (e.g. Shefrin and Statman, 1985). Moreover, individual investors have limited sums to invest, and can only take limited bets in non-contiguous time frames (which coincide with the availability of excess cash flows) and are likely continuously reference the performance of their selections relative to their overall wealth. The significant import, however, is that their returns as a cohort of market participants are infrequently analysed in academic or industry research.

investment is only judged retrospectively and the body of empirical research has not scientifically affirmed the superiority of institutional fund managers (as discussed in chapter 6). Further, as discussed in chapters 4 and 7, the reality that portfolio cash flows are not directly correlated with investment performance, provides important evidence that transactions by institutional investors may not necessarily motivated by price-sensitive information regarding assets *per se*.

9.2.3 *Marginal opinion and price formation*

Orthodox finance theory has assumed that security equilibrium prices reflect the discounted value of known or expected cash flows, and that investors are a generic but otherwise irrelevant aspect of pricing. However, within real financial markets, opinions of value, irrespective of *how* they are formed (or by whom), are the ultimate arbiters of price. This reality was noted by Williams (1938):

Both wise men and foolish, will trade in the market, but no one group by itself will set the price. Nor will it matter what the majority, however overwhelmingly, may think; for the last owner, and he alone, will set the price. Thus *marginal opinion* will determine market price (p. 12).

By emphasising the importance of marginal opinion, it is possible to remove the implied nexus between prices, market participants, rational expectations and the relative importance of investors' utility: all assumptions to which orthodox theory has remained steadfastly attached. Consistent with this realisation, the revised definition of investment espoused in this thesis specifically removed *how* or *why* opinions were formed; instead, emphasising that the vital ingredient for investment success resides in the ability of market participants to take pre-emptive positions – that is, to *lead* the price discovery process – so that their opinions about future valuations are ultimately realised in market consensus. The recognition that marginal opinion ultimately sets security prices therefore reinforces the need to ascertain greater details regarding the participants active in markets, and as a consequence, to be able to predict more accurately the factors which directly affect real world asset pricing.

Despite the overwhelming focus on the size of institutional investors, the behavioural finance literature has provided acknowledgement that uninformed participants such as “noise” and “feedback” traders – can and do – provide *leadership* in price discovery. For example, De Long *et al.* (1990a) have argued that security prices are subject to the whims of noise traders’ opinions whose erratic behaviour creates potential for mispricings relative to fundamentals. In addition, these authors noted that the normal “price correction” activities of arbitrageurs are disrupted as market mispricings become more extreme and that the role of uninformed noise traders grows commensurately with the retreat from trading by rational participants: ‘[t]he fewer sophisticated investors there are relative to noise traders, the larger is the impact of noise’ (p. 725).

These aspects have important ramifications for the role of institutional investors and financial fiduciaries which are large and frequent participants in financial markets. The competitive pressures exerted upon fund managers from agents *within* the industry represent important endogenous forces which may dominate transaction decisions. Fund managers may be compelled to invest portfolio cash flows according to fiduciary product investment rules, and in filling the “portfolio quotas” prescribed by market indexes or peer products, valuation judgements may literally be superfluous. Somewhat paradoxically, therefore, it may be conjectured that institutional investors which possess the power to move markets – but are subjected to contractual constraints and competitive pressures – may remain indifferent to valuation levels and ignore fundamental information signals. This feature of institutionalised investment management has been recognised in the behavioural finance literature:

...We assume that there are two types of managers: “smart” ones, who receive informative signals about the value of an investment, and “dumb” ones who receive purely noisy ones (Scharfstein and Stein, 1990: 466).

Accordingly, whilst institutional investors are generally assumed to *lead* the pricing, it is also foreseeable that despite their size and stature, they may prefer to remain “price takers” which are *dragged* by the price discovery and transactions of other, relatively unconstrained marginal participants. Concomitantly (and unconventionally, from an orthodox theoretical perspective), this suggests that greater emphasis should be placed on unconstrained market participants which have the capacity to exert influence upon market pricing which is disproportionate to their wealth: they may potentially lead security pricing function (and the basis by which all other portfolios are valued) even if this leadership occurs only over short time horizons.

Overall, therefore, understanding the nature and extent of practical constraints applying to the various participants in financial markets is especially important: this knowledge can reveal where *unconstrained* participants may have greater potential to wield greater influence over security pricing. As explored in section 9.2.4, a disaggregation of financial market participants is necessary to identify discrete cohorts of investors (including their prerogatives and constraints).

The other important aspect arising from the emphasis upon marginal opinion is that explicit awareness of the *tradable* – rather than total – market of financial claims (aggregate asset supply) is required. As depicted in figure 9.1, investment within the institutional setting of fiduciary finance is exercised using a notional subset of the total (economic) market capitalisation of financial claims. This subset is created by the free float adjustment methodology which has no theoretical rationale but was instigated to provide the fiduciary finance industry and its stakeholders with more realistic benchmarks for performance evaluation purposes. This is an important endogenous feature which must be incorporated into a conceptual approach to investment because it directly affects security pricing in supposed equilibrium.

By integrating the demand and supply factors an abstract “order book” can be constructed for each security at any point in time from which price estimates of supposed equilibrium can be estimated based upon the relative frequency of opinions of value. Williams (1938) showed how the different market participants’ valuation opinions (bounded from zero to infinity) could be depicted in frequency curves (weighted according to the number of securities it sought to buy or sell).¹¹³ In figure 9.2, diagrams 1 and 2 show the distribution of marginal opinion with \$40 being the *modal* rather than *marginal* estimate of market price.

Figure 9.2: Relative frequency curves of marginal opinion

Further, he developed an “opinion ogive” (shown in figure 9.3): this graphically depicted the number of participants and their respective opinions regarding supposed equilibrium value according to a cumulative frequency curve of participants’ marginal opinions (diagram 3). From this frequency curve of opinion, a demand curve could be constructed for any security (diagram 4). Changes in the market participants’ opinions about a security (or that of the broader market) therefore affect the shape and height of opinion frequency curves. These changes in marginal opinion then flow through to shifts in the demand curve and security prices.

¹¹³ This procedure is explained in more detail in chapter 3 of Williams (1938).

Figure 9.3: An opinion ogive of supposed equilibrium

An important component required for this conceptual approach, therefore, is a more informed and detailed description of the various marginal participants (their prerogatives, valuation heuristics, portfolio construction rules, and their investment portfolio cash flows) from which more accurate estimates of supposed equilibrium for individual securities – and thus financial markets in aggregate – can be formed.

9.2.4 Disaggregation of market participants and their prerogatives

Since financial markets comprise an aggregate of market participants – and each their opinions can potentially can affect security pricing at the margin – a more nuanced characterisation of the participants and their investing constraints is essential. In practice, marginal participants will comprise a spectrum of players including financial fiduciaries and funds managers, company insiders (managerial shareholders and founders), stockbrokers and financial advisors (servicing the personal investor market and/or acting as proprietary traders), banks and financial conglomerates engaged in trading of financial assets, individuals investing on their own accounts, and trustees of private pension funds.

This conceptual approach disaggregates the market participants according to their respective constraints. In table 9.1 a detailed matrix of the spectrum of financial market participants is provided which summarises the investment *prerogatives* (see section 3.3.2 for an explanation of this term) of the respective market participants. This matrix is

based upon observed characteristics of fiduciary finance and applied investment practices, rather than empirically-derived studies of trading activity or probabilistic generalisations regarding their size or skill levels derived from *ex post* performance. As noted above, these constraints potentially can inhibit the capacity of those participants to engage in price leadership.

Table 9.1: Disaggregation of market participants and investment prerogatives

		Investment prerogatives					
			<i>Return orientation</i>	<i>Loss aversion</i>	<i>Price sensitivity</i>	<i>Liquidity preference</i>	<i>Interest in fundamental valuation</i>
Types of market participants	<i>Unconstrained</i>	• Insiders	<i>Absolute</i>	<i>High</i>	<i>High</i>	<i>n/a</i>	<i>n/a</i>
		• Skill-based funds • Arbitrageurs • Individuals • Private pension funds	<i>Absolute</i>	<i>Moderate-High</i>	<i>Moderate-High</i>	<i>Moderate-High</i>	<i>Moderate-High</i>
	<i>Intermediaries</i>	• Stock brokers • Financial advisers	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
	<i>Constrained</i>	• Investment funds • Pension funds • Life insurers • General insurers	<i>Relative</i>	<i>Low</i>	<i>Low</i>	<i>High</i>	<i>Low</i>
		• Index trackers	<i>Relative</i>	<i>Low</i>	<i>Low</i>	<i>High</i>	<i>n/a</i>

9.2.4.1 Unconstrained participants

Insiders are market participants such as company managers, founders and substantial shareholders, and service providers which have access to private, price-sensitive information. Although insiders often have unconstrained investment prerogatives, their activities are affected by government regulations which are designed to ensure that they are unable to take advantage of their preferential position. In Australia, prohibitions on so-called “insider trading” are enforced, and most companies use trading “blackouts”, to restrict executives and other insiders from trading securities before and after public announcements. The emphasis of Australia’s continuous disclosure regime is to ensure information is made available to all market participants instantaneously. Aside from legal restrictions which rely upon surveillance (by the ASX as the market operator) and effective threats of enforcement, insiders are unconstrained participants.

Arbitrageurs are a generic class of unrestrained market participants which opportunistically adopt positions in securities perceived to be mis-priced. These market participants typically bet their capital on small price changes occurring in fruition of its forecasts. The activities of arbitrageurs are typically transient and can be achieved in a small number of transactions over a short time horizon. Skill-based strategies (also known as “hedge funds”) have institutionalised arbitrage activities, and are a relatively new category of unconstrained market participant. In contrast to conventional fiduciary products, the managers of these fiduciary products are specifically empowered to engage in significant portfolio judgements. They are often unrestrained with regard to the types of securities they can transact, are permitted to use gearing and derivatives to magnify returns (and risk). There is a wide disparity of prerogatives within the universe of skill-based strategies. Some are managed with the objective of providing an “absolute return” (i.e. positive returns in all market conditions) while others seek to outperform broad market averages with lower variability, thus providing an effective diversification and superior portfolio outcomes.

Individual investors are typically unconstrained marginal participants. Despite the fact that they trade less frequently than fiduciary institutions, they participate in markets without the encumbrances faced by institutional investors and have smaller market impacts. Individual investors can employ derivatives according to their individual skills and interests, and they do not face the prohibitions on leverage imposed upon pension funds (discussed in chapter 2). Individuals are more inclined to participate in issues of smaller capitalisation firms because these are typically considered too small and illiquid for investment by fiduciary institutions.

Further, private pension funds (discussed in chapter 2) which are established by individuals who typically assume direct responsibility for their own retirement assets, represent a significant cohort of unconstrained market participants. The growth in this

type of funds represents a profound structural change for financial markets because they command significant assets but are generally managed by trustees who take decisions within a framework of prerogatives which is unaffected by the conventional constraints of the fiduciary finance industry. In particular, the trustees of private pension funds are likely to be unconcerned with questions of relative performance (i.e. versus averages of “peer” funds or the market), and will rather be concerned with loss aversion and absolute returns.

Government provident investment vehicles which have considerable FUM scale (for example, the Australian government’s Future Fund had \$41 billion of investable cash as at 30 September 2006) and significant flexibility in their investment policies compared to mainstream fiduciary products. Therefore, these funds are expected to have significant impacts upon supposed equilibrium and close attention must be paid to their stated investment objectives (including their return orientation) and the individual investment mandates that they award to fund managers, because these features are likely to have profound effects upon asset classes and within the markets for individual securities.

9.2.4.2 Intermediaries

Stockbrokers and other market specialists participate in financial markets as marginal participants, although their focus is to execute transactions on behalf of clients. As noted in chapter 2, under the prevailing security industry regulations, “retail” brokers and financial advisers largely confine their advisory and trading “approved” stocks over which the firm can demonstrate that it maintains current and independent research. Stockbrokers and investment banks may focus on issuances where they have commercial interests acting as underwriters of IPOs, facilitators of secondary sales and placements, or ensuring market stabilisation for those transactions (also known as “green shoe” operations).¹¹⁴ By virtue of their business models and specialist “sell-side” expertise as

¹¹⁴ See further: ASIC(2000); ASIC(2005c).

designers and distributors of securities, these may initiate coverage of the stocks to increase the breadth of analyst coverage and facilitate the distribution of new issuances.

9.2.4.3 Constrained participants

In practice, as a function of FUM scale (and therefore transaction volumes), institutional funds managers are expected to be the most frequently observed class of marginal participants in financial markets. However, as noted above funds managers and index-tracking products are subjected to constant monitoring from within the highly-regulated tertiary market system of fiduciary finance. Therefore, these institutions are generally less likely to engage in significant market timing activities due to portfolio constraints incorporated into fiduciary products (in terms of allowable asset exposure ranges and tracking errors).¹¹⁵ Accordingly, these market participants would be expected to maintain a relatively “constant” position in a broad range of securities and market sectors, continually investing cash flows garnered from investors.

Although these constrained fiduciary institutions are regularly involved in generating marginal opinions, their investment activities may resemble quota filling: they will transact in financial markets to meet their liquidity requirements (which are determined by portfolio cash flows and product rules), rather than necessarily being concerned with fair value. Index funds which closely replicate market measures exemplify the most extreme case of a constrained participant: they have no interest in fundamental valuation measures and are generally insensitive to loss and price volatility. Indexation strategies have received increased portfolio allocations flows from pension funds which have moved to a relative performance footing: the significant growth in indexation which as Bernstein (2003) and others have noted, has created a powerful self-perpetuating effect which has propelled the market indexes higher (especially in the US).

¹¹⁵ In the case of the index-tracking products, the fund’s offer will specify the index basket of securities which will be invested, and the permissible maximum level of liquid assets.

9.3 An integrated selection of important pricing factors

The conceptual approach to security pricing requires factors associated with the fiduciary finance industry and their effects on security pricing to be identified and incorporated into a more detailed understanding of the actual market (i.e. proxies for *demand* and *supply* of financial claims in tradable markets).

Figure 9.4: Factor models for an integrated approach to security pricing

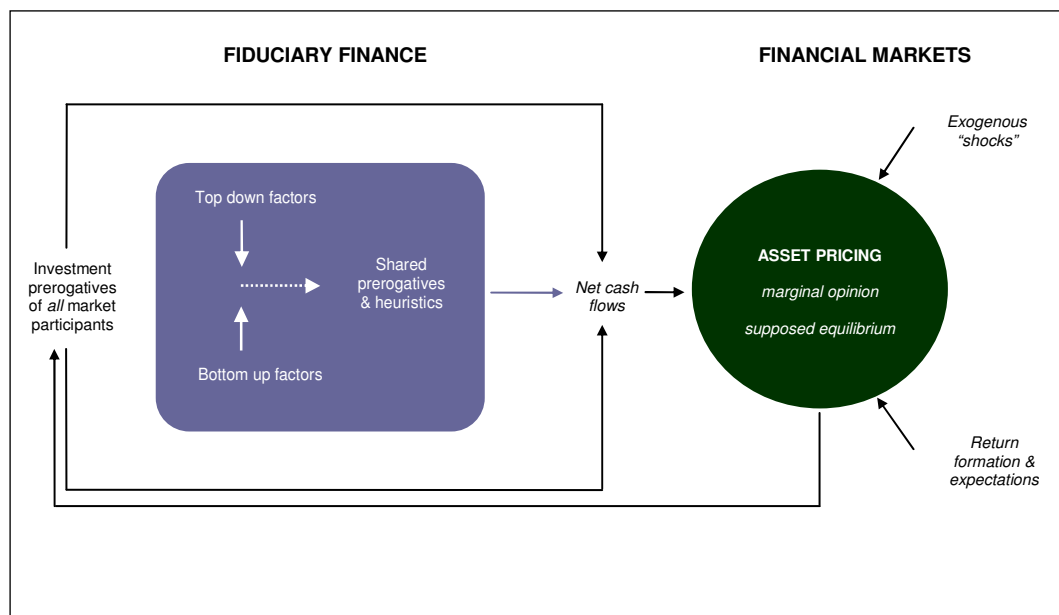


Figure 9.3 and the following section, therefore, proposes a range of factor models which target systemic (or “top down”) influences of fiduciary finance and other important sources which are likely to translate into changes in the allocation of capital *between* various financial markets/asset classes and “bottom up” phenomena associated with fiduciary product/investment strategies which are expected impact upon the supposed equilibrium of individual securities.

9.3.1 Top down/systemic

As noted in chapter 4, Toporowski (2000) has provided a compelling argument that net funds flows into the financial markets from pension funds) can results in “overcapitalisation” and sub-optimal decision-making in the real economy: this theory posits that security prices are rarely synchronised with fundamental value and underlying capital productivity. The continuing growth in funds flows arising from privatisation of pensions and self-funded retirement schemes, suggest that financial markets will imitate a

Ponzi scheme, with exacerbated price discrepancies and lead to eventual market collapse as prices return to more justifiable levels. Regardless of whether this prescription eventuates, it is important to ascertain the extent to which fund flows provide systemic biases which can affect prices and volatility (compared with long-term averages). Modelling these potential systemic effects is also important for determining whether investors are adequately compensated for taking risk.

9.3.1.1 Pension industry cash flows

One of the principal sources of reliable, systemic demand for financial assets are inflows to Australia's pension/retirement incomes system which are invested across various asset classes. These cash flows are the savings contributed by individuals and employers which are placed into fiduciary products (providing indirect exposure to financial markets) and the direct investments of private pension funds.

Accordingly, whilst long-term statistics suggest a process of normalising equilibrium in financial markets, *ceteris paribus*, the supply of risk capital (or the so-called "weight of money") directed by financial fiduciaries into financial markets is likely to provide structural demand pressure and security pricing effects, irrespective of "fundamental" information signals. Many investment banks are already undertaking this form of modelling. For example, a recent research report published by UBS Australia forecasted net funds flows from the Australian pension funds segment of \$56.6 billion in the 2007 calendar year, of which \$24.1 billion was expected to flow into Australian equities (equivalent to 2 per cent of the total market capitalisation of the ASX) (UBS, 2007: 5). This research also noted that the Australian government's Future Fund (which at the time of writing remained invested in cash and liquids and had not formally detailed its investment policies) was expected to contribute \$14.4 billion in demand alone for Australian equities (UBS, 2007: 6).

9.3.1.2 Notional aggregate retirement liabilities

Although scholars have documented the continuing trend to privatisation of government pensions (and the transition from corporate-sponsored defined-benefit schemes to accumulation type schemes was noted in chapter 7), these structural changes do not automatically mean that funds are withdrawn from asset markets: they are directed into other long term savings vehicles such as fiduciary products (i.e. primarily pension funds) whose *raison d'être* is to provide retirement incomes.

Regardless of the *actual* benefit structures employed, therefore, it is possible to model estimated systemic demand for financial assets according to an aggregate “notional liability” of Australia’s working population. This model could be constructed using assumptions about demographic factors, discount rates, and desired retirement incomes, to quantify future retirees’ liabilities according to a present value calculation. As noted in chapter 4, this demand proxy would be independent of the vicissitudes of asset returns (and the assumptions of the mean variance optimisation framework) and be more accurately aligned to the true objective of retirement funds (i.e. financing liabilities). Such a proxy could be constructed from an aggregated series of “liabilities indexes” which could measure retiree cohorts (according to discrete age brackets and thus incorporating the “baby boomer” generation) and to forecast their desired retirement benefits.

9.3.1.3 Security issuance and changes in the available stock (supply) of tradable capital

Whilst total demand for assets can be modelled using demographic factors and retirement liabilities, a proxy of the *net supply* of tradable securities is an independent variable which requires quantification. As noted above, for the purposes of modelling pricing impacts, explicit allowance for changes in available the stock of financial claims arising from corporate actions and free float adjustments is required.

The aggregate *net supply* of stock issuances therefore comprises *gross* primary market issuances (IPOs; privatisations; rights and placements; employee stock plans, options) *less* negative issuances (mergers and acquisitions transactions; stock buybacks). UBS Australia has estimated that the issuances of Australian equities in 2007 would be \$49.1 billion comprising primary issuances of \$12.1 billion, secondary issuances of \$44.5 billion and buy-backs of \$7.5 billion (UBS, 2007: 3); it forecasted that takeovers would remove \$6.9 billion of issued capital (returning this amount in cash proceeds to participants) over this period (UBS, 2007: 4). These forecasts require continuous updating according to market events, however.¹¹⁶

9.3.1.4 Institutional asset allocation changes and mimicry by constrained investors

As noted in chapter 3, an important feature of fiduciary products (offered in both the mutual and pension fund segments) is that they typically employ diversified investment strategies constructed using strategic benchmarks which define “neutral” portfolio asset allocations, and allowable exposure ranges.

Whilst these benchmarks are established according to “long-term” investment horizons, it is common practice for fund managers and trustees to review them periodically using mean variance optimisation procedures to construct efficient portfolios.¹¹⁷ These reviews may undertaken by fiduciaries who determine them to be a prudent response to the emergence of new investment opportunities (or asset classes) which are expected to provide diversification benefits, or structural changes occurring in financial markets which necessitate fundamental revisions to assumptions (and thus outputs) of portfolio optimisation procedures.

¹¹⁶ In February 2007, a private equity consortium announced an \$11.1 billion buyout of Qantas Airways, Australia’s national flag carrier.

¹¹⁷ These changes may be prompted by asset-liability hypothecation considerations. For example, APRA requires trustees to undertake triennial asset allocation reviews to ensure that the investments of the fund remain appropriate.

Changes to portfolio policies may also be motivated by the requirement to remain commercially competitive, especially where peer funds adopt new portfolio strategies which may result in significant discrepancies in allowable investments, and thus performance outcomes.

Because the pension funds segment represents a significant aggregation of constrained portfolio capital – and there is mimicry amongst competing product providers – monitoring benchmarks and exposure ranges should provide a useful gauge of changes in systemic demand for the respective asset classes. A model could be therefore be constructed for a representative sample of large Australian pension funds to capture changes to investment policies (asset allocations and exposure ranges) and the extent of consensus/competitive decision-making rules which are employed.

9.3.2 Strategy-specific

The fiduciary finance industry is sustained by sales of fiduciary products (product inflows) and growth in asset scale. The creation of new fiduciary products is undertaken by fiduciaries which are business managers: their principal motivation to generate profit from selling and managing fiduciary products, however fund formations themselves, in addition to creating latent demand for securities and asset classes targeted by those products, may also provide signalling or certification of assets to other market participants.¹¹⁸

As this thesis has emphasised, the industry's tertiary market system operates within a zero-sum game which creates inherent economic penalties for fund managers which provide uncompetitive returns: product structures therefore provide well-defined investing rules for the operation of investment portfolios, and in this context, close

¹¹⁸ This suggests that in the process of fund formation, the market intelligence and business rationale of fund managers can be implied as certifying that these assets are expected to receive product cash flows in the future.

scrutiny should be given to the price and volume effects created for individual securities, particularly at the margin. Since success in investment requires the taking of incremental positions, the following factors are therefore identified because they emphasise changes to the supply/demand equilibria (or price “squeezes”) which may occur within the markets for individual securities due to the operation of specific investment strategies.

9.3.2.1 Index-tracking strategies

As has been noted in this thesis, financial fiduciaries and fund managers are preoccupied with the “market” regardless of whether they are offering an active or passive investment proposition. Market indexes are important structures because they provide a bounded and discriminate view of the financial markets: they provide clear rules as to which investments should be considered and when.

Index funds are the ultimate manifestation of a constrained marginal participant because index rebalancing and reconstitution events require commensurate changes within indexed portfolios. The mechanistic nature of portfolio indexation and attendant tracking error constraints induce disequilibrium within markets for individual securities has been documented within the literature (known as the “indexing game”). Unconstrained market participants which are able can provide liquidity (at a price) to index-tracking investors, are able to generate abnormal profits simply because they are not bound by the constraints and rules of the indexers.

The index game also extends to longer term judgements which enable unconstrained participants to pre-empt changes to index constituents: for example, being invested (short) those stocks before they included (excluded) from the index “opportunity set” can provide significant investment payoffs. Variations of the index game can also occur within the various investment styles (discussed further in the following sections).

9.3.2.2 *Style strategies*

Investing style strategies provide a disaggregation of markets, and provide fund managers with a means to identify and exploit anomalies (Bernstein, 1995). As noted in chapter 7, after examining the impacts of industry gatekeepers, it was suggested that investment mandate churn would not automatically create substantial changes in the underlying portfolio exposures of pension funds; at least an asset class level. There is potential, however for price and volume effects within individual stocks when portfolios are transitioned to new investment styles, and/or new fund managers are allocated portfolio management responsibilities within the same investment style.

In the case of a change of investment style, and where specialist transition managers is not employed, the outgoing fund manager will generally not have any significant incentive to minimise market impacts. Depending on the terms of the investment mandate termination, the portfolio may be “frozen” (and later transferred *in specie*) or the holdings may be liquidated on market with the client receiving the cash proceeds. For the incoming fund manager, stocks which are extraneous to their requirements are likely to be disposed at any price. Conversely, stocks in the fund manager’s “model portfolios” but are not held within the portfolio, are likely to be acquired relatively quickly by the incoming manager (i.e. they will be price inelastic) to the extent that it can achieve the alignment of the portfolio according to its “best bets”.

For unconstrained market participants, a detailed knowledge of the “overlaps” in the model portfolios of the fund managers and style universes can convey valuable information for the purposes of pre-empting transactions and supplying liquidity to fund managers constrained within the respective style universes.

9.3.2.3 Small capitalisation strategies

In the academic literature, significant attention has been given to the apparent abnormal returns and earnings anomalies which are generated by smaller capitalisation issues (so called “small caps”). These outcomes have been correctly attributed to survivorship/representation biases (e.g. Siquefield, 1991; Ennis and Sebastian, 2002). However, despite this empirical evidence, the small cap segment comprises a discrete segment of the fiduciary finance industry which directs funds flows into a captive segment of the total equity market (a restricted universe of securities).

In Australia, in common with most equity markets, the distinction between the “broad” or “large cap” market (exemplified by the S&P/ASX200 Index) and the small cap styles, is determined by an index: the S&P/ASX Small Ordinaries Index. This index is the primary benchmark for small cap products and it includes all stocks in the S&P/ASX 300 Index excluding the S&P/ASX 100 constituents. According to Standard & Poor’s (2004b: 19), the index represents approximately 6 per cent of the Australian stock market’s total capitalisation.

Since small-cap stocks generally reside outside of the allowable portfolio parameters for many mainstream fiduciary products, and they are inherently illiquid relative to larger cap issues, these attendant characteristics can induce price squeezes: these effects are magnified by fiduciary products which specifically channel funds flows into this discrete segment of the stock market.

As with the preceding discussion for style strategies, an awareness of the preferred portfolio “bets” for fund managers within the small cap subset of the tradeable equity market, should impart valuable information for unconstrained market participants.

9.3.2.4 Thematic strategies employing non-financial criteria

As discussed in chapters 2 and 8, in response to consumer concerns and the predilection of pension fund trustees for “socially-aware” or socially responsible investment (SRI) strategies, financial fiduciaries have introduced thematic investment strategies. For practical purposes, these fiduciary products are differentiated from mainstream strategies because the conventional “profit maximisation” objective is supplemented by criteria relating to social responsibility, environmental and corporate sustainability. These “dual” objective strategies therefore require fund managers to take into consideration non-financial criteria when selecting investments, with an overall objective of providing superior long-term returns versus market benchmarks and mainstream strategies.

As noted in chapter 2, product-focused research has found that funds managers which promote these products adopt disparate criteria, and under pressure exerted by regulators and gatekeepers, they are compelled to make detailed and continuous disclosures about their portfolio “rules”, market positions, and performance. To the extent that thematic strategies are managed according to specific and unique security selection criteria, unconstrained market participants will have to capacity to exploit the signalling provided by this cohort of fiduciary products.

9.4 Conclusions and avenues for further research

Whilst this chapter has provided a more enriched description of market participants and the supply and demand forces acting within the financial markets, it does not address the fundamental genesis of the investment task: this remains the accurately predicting returns at their point of *formation* within economic sectors and individual firms. Accordingly, this conceptual approach does not supplant the methodologies of the intrinsic value paradigm which have enduring appeal for industry practitioners (and academics); even if this is to only to conform with expectations about what investment *should* be.

Fundamental valuation techniques of the intrinsic value paradigm, despite their shortcomings, have endured the vacillations in market sentiment and remain important points of reference for “theoretical” investors in academia, players in the investment game, and regulators of the financial markets. In contemporary practice, the precepts and analytical techniques of this paradigm have been “modernised”: “sufficiency” of returns is assessed according to more rudimentary and transparent measures such as “underlying cash earnings” or “normalised operating earnings” (to which suitable multiples can be applied for valuation purposes) rather than distributed income (dividends and interest coupons).

Despite the main perceived inadequacies (i.e. computational complexity, normative rather than positive) of Markowitz’s (1952, 1959) pioneering mean variance portfolio optimisation procedure, it retains several desirable features for portfolio decision-making purposes. For discriminating investors making portfolio choices which are not constrained by the structure or performance of broader market indexes, or the constraints of fiduciary finance, this procedure retains its practical efficacy for rationing investment choices according to their potentialities. Thus, Markowitz portfolio optimisation is complimentary to, and improves upon, the inherently subjective approach of the intrinsic value paradigm, especially for devising appropriate portfolio weightings and achieving portfolio diversification.

This conceptual approach to investment has recast the role of fiduciary institutions and institutional investors by explaining their functions and the endogenous industry forces governing their business and investment activities. An important, and unconventional theme which has emerged, is that financial fiduciaries whilst providing the bulk of risk capital and transactions in financial markets, may be followers rather than leaders: unconstrained and informed market participants potentially stand to gain from their investment activities.

In conclusion, the conceptual approach to investment outlined in this thesis has integrated knowledge of the fiduciary finance industry and its interactions with financial markets: it does not represent a capitulation to popularised views that investment is a random or chaotic exercise, nor that financial markets are “irrational”. For unconstrained investors such as individuals and trustees of private pension funds who have the desire to manage their own investments, this thesis should provide the necessary theoretical empowerment to attempt to win the “investment game”.

CHAPTER 10 – CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

This thesis has made four significant contributions to the literature. First, it classified the principal research paradigms of the investment discipline. Second, it addressed questions of ontology by critiquing two “flagship” theoretical models, with cognisance of their methodological features, to show constructively *why* scientific legitimacy had eluded the positive economic models of the investment discipline. Third, the thesis introduced new knowledge about investment examining the activities of the fiduciary finance industry’s “gatekeepers” in two unique empirical studies. Finally, the thesis espoused a conceptual approach to investment which incorporated the extended knowledge of the fiduciary finance industry and its interactions with financial markets. This recast the role of fiduciary institutions and their investing practices positing that market participants not fettered by the prerogatives and constraints of fiduciary finance, possessed important requisites for succeeding in the investment game.

The overarching purpose of this thesis was to provide a conceptual approach to investment, which incorporated the endogenous effects of the Australian fiduciary finance industry. With financial fiduciaries directly influencing the operation of financial markets, chapter 2 provided an extensive institutional overview which highlighted the economic stature of fiduciary finance as an economic system in its own right: this identified the various participants within the industry’s food chain, their business models, and explored the emergent trends of consolidation and product innovation. Further context was provided by examining the pension funds segment – the predominant point of capture for the industry’s funds flows – and the main types of investment strategies packaged for customers. Finally, a “look through” analysis summarised the ultimate destinations of the industry’s investment portfolios according to asset classes and financial markets.

Chapter 3 explored the notions and realities of applied investment cognisant of the practical constraints which shape the industry and portfolio management practices. It also explained that the “tradable” component of financial markets – a subset of total economic value defined arbitrarily by index compilers – was the opportunity set presented to financial fiduciaries. This chapter concluded by positing a universal definition of investment which was consistent with the fundamental purpose of the discipline. By removing the emphasis on the processes employed by the various participants in financial markets to achieve their prerogatives, and dispensing with putative dimensions, this applied definition provided an objective basis for scrutinising the discipline’s theoretical foundations.

Chapter 4 provided a synthesis of the extant literature which addressed questions of epistemology and ontology. By highlighting the theoretical and methodological underpinnings of the respective paradigms, this synthesis revealed that the antecedent research efforts in the discipline had placed heavy reliance upon inductive science to derive knowledge about investment. The rate of scientific advancement within the paradigms of the discipline was assessed according to their methodological foundations and capacity to provide real knowledge and meaning about investment. This synthesis identified the emergent literature concerning financial fiduciaries, the conscious design of fiduciary products and securities, and therefore, provided the philosophical locus for the ideas and research methodologies employed in the thesis.

Chapter 5 provided a conceptual critique of the CAPM which scrutinised the derivation of beta values and sources of residual risk; both instrumental features of this important research exemplar. Cognisant of index construction practices and the reality that stock market indexes were relatively simple “closed systems” of weights and returns, the – not previously unidentified effects of index turnover were quantified as the source of

modelling errors, with direct ramifications for security “betas”, and the CAPM’s specification of systematic and unsystematic risk.

The effects of index turnover were examined empirically using the ASX50 Index (an important institutional benchmark for Australian equities used by both domestic and offshore fund managers) between 1994 and 2002 using proprietary data which measured the index constituents and their respective actual market return contributions. On average, it was revealed that index turnover artificially boosted the performance of the broad market index by over 2 per cent per annum over this period. This analysis revealed that econometric modelling techniques commonly used to estimate “systematic” risk using market indexes afflicted by the performance impacts of index turnover, would introduce significant and spurious errors. The phenomenon of index turnover was examined using a “closed” market model comprising a fixed sample of constituents. This analysis demonstrated deductively that actual market risk contributions could be verified from historical data without resorting to econometric estimation procedures: it also allowed the scientific value of the CAPM’s beta values to be directly scrutinised in a controlled experiment.

Fundamentally, this critique showed that the CAPM’s central and bold conjecture – the existence of a dichotomy between market and non-market risk – was illusory and mistaken. Beta values were shown to be unreliable and unscientific measures of market risk, even in *ex ante* terms. The remaining construct of the CAPM, idiosyncratic risk, was shown to be merely a statistical artefact. Given the application of the CAPM for performance evaluation within the fiduciary finance industry, and the broader economy, this critique had profound ramifications for investment practices, pricing risk capital, and allocation of capital within the real economy. This chapter concluded that the CAPM was pseudo-scientific and meaningless: it did not provide knowledge about financial markets which would otherwise be more accurately from direct observations.

Chapter 6 provided a conceptual critique of the empirical methods used within a large body of literature (colloquially, the “active versus passive debate”). Previous research findings in a voluminous body of literature purported to provide scientific evidence that actively-managed portfolios provided inferior economic returns for investors, and thus directly called into question the economic rationale of judgemental portfolio investment strategies.

In contrast to antecedent empirical research efforts which had used more granular datasets and added apparent scientism to the debate, this critique examined the methods and meaning of the debate. Using a logical reduction, it demonstrated that the inductive generalisations of the debate were inadequate. The debate has revealed as a disguised tautology and that the numerous performance measurement “discrepancies” documented in the empirical literature, had been mistaken by researchers as representing meaningful phenomena. This critique concluded that the empirical methods of the debate were redundant and pseudo-scientific: its findings could not provide conclusive scientific affirmation of the theoretical notion of market efficiency, and thus, the economic rationale of index-tracking strategies was queried. Further, this chapter noted the debate had generated significant intellectual momentum with powerful self-fulfilling effects within fiduciary finance. The continuous evaluation of fund managers and the increasing pervasiveness of herding amongst institutional investors appeared to have altered the balance of power between corporations and investors.

The critiques in chapters 5 and 6 provided direct refutation of the scientific status discipline’s flagship positive economic models, according to their innate methodological benchmarks, and their inability to provide meaning about investment or financial markets. The circumspection of stakeholders regarding the scientific legitimacy of the investment discipline based on these flagship theoretical models was therefore justified. The

remainder of the thesis sought to provide enriched knowledge of applied investment and the institutional settings of fiduciary finance. The next two chapters of the thesis provided an expanded knowledge of the fiduciary finance industry; viewed via its gatekeepers.

Chapter 7 explained the evolving commercial role and economic importance of pension fund investment consultants. These gatekeepers advise pension fund trustees regarding investment strategies and fund manager selections, and exert significant influence over distribution of funds flows *within* the tertiary markets of fiduciary finance industry (and ultimately, to the issuers in financial markets). This study examined the important issue of the *influence* exerted by these agents from a unique perspective: supplier-gatekeeper interdependencies.

This study studied mandates awarded to fund managers using a representative sample of 258 Australian pension funds. It found relatively high levels of investment mandate churn, high levels of concentration in gatekeeper influence and significant economic dependencies existing between fund managers and the gatekeepers. Pension funds turned over more than one third of their fund managers (in FUM terms) during the analysis period 2003 to 2006; a disturbing finding given the generally accepted view that “patient” investment strategies were required to maximise returns and minimise costs, and the fact that pension fund trustees were supposedly the beneficiaries of the “best available” investment advice. Most significantly, for fund managers, this study revealed that the five largest pension consultants controlled virtually all of the funds distributed within the industry: there were relatively few winners in terms of mandate awards, and even the largest fund managers were heavily dependent upon their leading gatekeeper for new business and thus, business profitability. Surprisingly, these characteristics were more exaggerated in Australian equities: a highly contestable asset class for local and offshore fund managers.

Given the significant and growing levels of institutional equity ownership by financial fiduciaries, and stakeholders' concerns regarding corporate governance standards, chapter 8 examined the investment implications of fund managers – the gatekeepers of beneficiaries' interests – which employed a targeted investment strategy using corporate governance criteria. Noting that the existing empirical literature provided unequivocal support of the economic efficacy of typical corporate governance measures, and institutional activism *per se*, this essay scrutinised the “good” corporate governance investment thesis using previously unreleased data on ownership structure, and conformance with best practice guidelines amongst Australia's largest 200 firms.

This study found that a portfolio of Australia's “poor” governance firms significantly outperformed the broader market by between 5 and 13 per cent per annum over the long term. These firms also exhibited superior operating performance relative to the broad market based on a comparison of earnings growth, cash flows, and capital efficiency. Using a principle of mutual exclusion, these findings did not support the “good” governance investment thesis. Moreover, financial fiduciaries which excluded poor governance firms potentially exposed their beneficiaries to lower returns and increased volatility. In light of the resources these measures consumed, and the respective fiduciary duties owed to beneficiaries, this study suggested that increased scrutiny of investor activism relating to corporate governance reform (and other non-financial initiatives) was desirable.

Chapter 9 outlined a conceptual approach to security pricing which incorporated the extended details of the fiduciary finance industry's food chain, its investment strategies, and the respective prerogatives of market participants. With the benefit of the critiques and an enriched understanding of applied investment practices, this conceptual approach broadened the context scope of the extant literature, which had primarily employed a

positive economics methodology. This conceptual approach highlighted the importance of *marginal opinion* as the critical driver of security pricing, and a provided a range of salient factors which were likely to provide useful avenues for researching the effects of fiduciary finance on security pricing.

A number of future research directions were highlighted and discussed in this thesis. Chapters 5 and 6 highlighted the shortcomings of relying upon statistical inductions to derive meaningful generalisations about real world financial markets, and mistakenly using anomalous findings and artefacts as a deterministic basis for theorising.

Chapter 5 in effect presented a “pilot” study which identified the significant performance effects associated with index turnover using a relatively small index basket of fifty stocks. An enhanced understanding of this phenomenon would be achieved by examining truncation effects within indexes of broad markets (such as the S&P/ASX200 Index or the S&P500 Index) or industry sectors. In exploring the sources of modelling errors, it was suggested that more detailed research could be undertaken to quantify the more subtle effects of constituent weighting changes which occur periodically, or ad hoc, when index publishers re-balance and reconstitute index weightings due to corporate actions (such as share issues and repurchases) and changes in ownership (free float adjustment). The distortions and inherent biases in market returns resulting from index management remain unquantified and are “permanent” return differences between investors’ portfolios and market indexes. They have far-reaching implications in both investment and corporate finance applications; potentially creating mis-pricing of equity risk, and sub-optimal capital allocations.

Further, chapter 6, which demonstrated the inadequacy of the active versus passive debate, showed that existing empirical research had provided only a powerful placebo, rather than scientific justification, for the theoretical notion of informationally efficient

markets. Separately, it indicated that increased scrutiny of indexes as “scientific” instruments was warranted given their widespread usage in industrial spheres as the practical basis of indexation strategies, performance benchmarks for fund manager evaluation, and in portfolio management decisions regarding asset allocations and security selections.

With relative performance measurement a powerful driver of investment practices, the more fundamental question which has largely remained unaddressed within academic research, is whether indexation is an appropriate investment strategy for real-world investors, given their unique prerogatives and idiosyncratic risks. Research efforts need to be directed at designing generic “investment indexes” which more accurately align asset portfolios to underlying liability structures and other fundamental variables – and thus, provide closer alignment between financial market benchmarks and the true prerogatives of investors.

The critique of the active passive debate revealed that additional research is also required to develop statistically valid and representative generalisations of the “average” returns generated by domestic equity investors. An analysis of the investing proclivities and performances of the private pension funds segment and individual investors who have chosen to invest directly using on-line trading tools is necessary. These research efforts are required by investors and policy-makers to assess the relative merits of self-directed/judgemental investment strategies.

Chapters 7 and 8 expanded upon themes which were linked with the methodological shortcomings of the prior literature (including presumptions of market efficiency) and addressed the necessity of broadening the theoretical research to incorporate actual investment practices. The empirical study of gatekeeper influence highlighted the critical importance of pension fund consultants within the industry’s food chain. The principal

limitation of this empirical analysis was that the data was drawn from a relatively short time horizon (albeit for a large and representative sample of Australian pension funds). An extended analysis would be highly beneficial and would give greater confidence that the dependency levels observed were representative of the entire industry.

In consideration of the highly concentrated nature of the funds management industry and the pervasive influence of gatekeepers, a continuing review of the regulatory framework may be needed to encourage effective choice and risk-taking by pension trustees and that their fund managers ensure that their beneficiaries' long-term economic interests are maximised. As was highlighted in this thesis, the evolution of gatekeepers into fund managers via the operation of implemented consulting schemes, suggests that focused scholarship is required to scrutinise the economic benefits promised from these schemes. Also as was noted, the important role of "transition managers", which have been omitted from the literature, requires scholarly scrutiny given the significant potential economic costs which can arise from investment mandate changes and portfolio reconstitutions.

An important limitation of the model employed in this study was an assumption (in common with previous research efforts) that causal linkages actually existed between corporate governance and financial performance. This relationship is problematic and a more nuanced model of corporate governance is required which incorporates recently formalised best practices, and could examine these over a full economic cycle. A further challenge for the fiduciary finance industry is to develop appropriate vehicles which permit the effective use of ownership rights without creating detrimental return outcomes for beneficiaries. The quantification of the direct costs and indirect effects associated with corporate governance best practices remains an important empirical issue for corporations.

The conceptual approach to security pricing provided in chapter 9 suggested more fruitful avenues for research focusing upon the factors associated with the fiduciary finance industry and its interactions with financial markets (including aggregate demand and supply pressures created by specific investment strategies). This chapter outlined a normative rather than positive approach to security pricing. This approach did not address the issue of identifying the formation of returns – undoubtedly a crucial part of investment success – nor the extraneous/macro economic “shocks” which periodically affect financial markets.

APPENDICES

Appendix 1: Milestones in Australia's fiduciary finance industry

Date	Development
1928	The first Australian mutual fund, Australian Foundation and Investment Corporation, is listed on the stock exchange.
1936	Walton's First Australian Unit Trust launched.
1958	First listed property trust launched by Hooker Investment Corporation.
1970	Financial planning licences issued by Corporate Affairs Commission (now ASIC).
1980	First cash management trust established by Hill Samuel (now Macquarie Bank).
1983	Removal of restrictions on investment in foreign securities; international fund managers establish retail funds; taxation on lump sum payments to superannuation beneficiaries was raised to 15 per cent for amounts below a specified threshold, with amounts above this threshold taxed at 30 per cent; contributions and earnings of superannuation funds remained untaxed.
1984	Not-for-profit multi-employer industry funds created in building, manufacturing and transport which unbundled fund administration, funds management and insurance.
1985	Merger of regional stock exchanges to form the ASX; capital gains tax introduced applying to (real, and not nominal) realised gains and losses on assets acquired after 19 September 1985.
1986	Introduction of 'award super' which compelled qualifying employees subject to industrial agreements and awards to accept at least 3 per cent of salary in the form of employer superannuation contributions for two thirds of the working population; first ethical fund launched by Friends Provident (now Tower Insurance).
1987	The ASX is formed by enabling legislation of the Australian Parliament resulting in the amalgamation of six independent stock exchanges which had formerly operated in the state capital cities. The classical system of company taxation replaced by dividend imputation allowing firms to attach franking credits to dividends distributed to shareholders where corporate tax paid on earnings.
1988	Federal Government imposes a 15 per cent tax rate on both contributions and earnings to superannuation: a 15 per cent tax rebate was permitted where benefits were paid as an annuity.
1991	Enactment of Corporations Law brings managed funds under the direct supervision of a national regulator (the Australian Securities Commission) and introduces mandatory requirements for managed funds to have approved deeds, be managed by licensed public companies, and use independent trustees; collapse of unlisted property trusts.
1992	Superannuation Guarantee Charge (SGC) introduces a universal system of mandatory employer superannuation contributions, initially at 3 per cent of salary effective from 1 July providing superannuation coverage to about 90 per cent of employees; master trusts established by Bain & Co (now Deutsche Bank), MLC (now NAB), Norwich Union and Sealcorp (now St George Bank).
1993	Superannuation Industry Supervision (SIS) legislation increases prudential requirements for the superannuation industry; tax on fund earnings 15%.
1996-7	Financial System Inquiry leads to functional regulation of financial system: APRA becomes the sole prudential regulator overseeing insurers and pension funds, ASIC regulates corporations and managed investments, and RBA has responsibility for the banking institutions and stability of the payments system.
1997	First investor-directed portfolio service (wrap account) launched by BT Portfolio Services (now Westpac Banking Corporation). Corporate Law Economic Reform Program (CLERP) commences to improve Australian corporate governance standards and introduces harmonised licensing, conduct and disclosure regime for financial services providers.
1998	New regulatory arrangements for managed investments (Managed Investments Act) a "single responsible entity" management company and a separate independent trustee be abolished and replaced with a single "responsible entity" mirroring the governance/custodial structure of pension funds.
1999	A capital gains discount introduced: individuals and the beneficiaries of trusts pay tax on half (superannuation funds pay tax on two-thirds) of any realised capital gain for assets held for twelve months.
2000	Refundable excess imputation credits (important source of economic returns for pension funds).
2001	First Australian exchange traded fund (ETF) launched.
2002	The SGC contribution rate increased to 9 per cent in 2002-03; Financial Services Reform Act 2001 (FSR) provides uniform licensing of all financial services providers (Australian Financial Services licence) including fund managers and operators of registered schemes, and mandates disclosure requirements for offers or sale of financial products to retail clients.
2003	Super co-contribution scheme of up to \$1,000 introduced for low income workers (income up to \$40,000) who make voluntary superannuation contributions; formation of Future Fund to meet unfunded pension liabilities of federal government employees; superannuation splitting permitted for eligible couples.
2004	Amendments made to the co-contribution initiative expands eligibility by increasing the income threshold to \$58,000 and increases the maximum co-contribution to \$1,500.
2005	Choice of fund legislation takes effect from 1 July 2005 compelling many employers to provide their employees with a choice of superannuation fund.
2006	The Australian Government in its 2006-07 Budget, proposes measures applying from 1 July 2007 to simplify the superannuation system and improve retirement incomes: removes taxation on benefits received by most individuals aged 60 or older, and the obligation (previously imposed upon retirees) to "draw down" their benefits. Size of Australian industry exceeds \$1 trillion.

Appendix 2: Index turnover in the ASX50 (January 1994 to June 2002)

Index additions			Index deletions		
Date	Code	Stock name	Date	Code	Stock name
31/8/94	TNT	TNT	29/7/94	ACS	Australian Cons. Press
30/11/94	NCPDP	News Corporation non-voting	30/6/95	ANI	Australian National Industries
31/3/95	QBE	QBE Insurance Group	30/6/95	EML	Email
31/7/95	BRY	Brierley Investments	31/8/95	AMX	Ampolex
31/7/95	GMK	Gold Mines of Kalgoorlie	30/11/95	BTR	BTR Nylex
29/9/95	QAN	Qantas Airways	30/11/95	GMK	Gold Mines of Kalgoorlie
31/10/95	ABA	Advance Bank	31/1/96	TNT	TNT
29/12/95	SGB	St George Bank	29/2/96	FLC	Fletcher Challenge
31/1/96	WSF	Westfield Trust	28/6/96	BPC	Burns Philp
29/2/96	RGC	Renison Goldfields	31/7/96	PGO	Poseidon Gold
29/3/96	TAH	Tabcorp Holdings	29/11/96	PLP	Placer Pacific
31/7/96	VRL	Village Roadshow	31/12/96	ABA	Advance Bank
31/7/96	VRLPA	Village Roadshow Pref	30/4/97	PLU	Plutonic Resources
31/7/96	VRLPB	Village Roadshow Pref	30/6/97	NCM	Newcrest Mining
30/8/96	NDY	Normandy Mining	29/8/97	RGC	Renison Goldfields
31/7/97	CGH	Colonial Group	30/6/98	HAH	James Hardie
30/9/97	MBL	Macquarie Bank	30/6/98	PAS	Pasminco
31/12/97	TLSCA	Telstra Corporation instalments	30/10/98	BRY	Brierley Investments
29/5/98	SUN	Suncorp-Metway	31/8/99	GIO	GIO Insurance
31/7/98	AMP	AMP	31/1/00	BOR	Boral
31/7/98	CCB	Coca-Cola Beverages	29/2/00	BLD	Boral
31/7/98	TNZCA	Trust Company New Zealand	29/2/00	CCB	Coca-Cola Beverages
30/10/98	TLS	Telstra	29/2/00	ORGDA	Origin Energy instalments
30/11/98	CWO	Cable & Wireless Optus	27/4/00	CMC	Comalco
31/3/99	HVN	Harvey Norman	27/4/00	PNI	Pioneer
30/4/99	TEL	Telecom New Zealand	31/5/00	CGH	Colonial Group
31/1/00	CPU	Computershare	30/6/00	PPX	Paperlinx
31/1/00	CSL	CSL	31/7/00	NBH	North
29/2/00	BLD	Boral	30/3/01	HTA	Hutchison Telecomms
29/2/00	ORGDA	Origin Energy instalments	30/3/01	PDP	Pacific Dunlop
31/3/00	ALL	Aristocrat Leisure	29/6/01	ERG	ERG
31/3/00	AXA	AXA Asia Pacific	29/6/01	ORI	Orica
27/4/00	PPX	Paperlinx	31/8/01	CWO	Cable & Wireless Optus
31/5/00	MGR	Mirvac Group	31/12/01	GMF	Goodman Fielder
30/6/00	ERG	ERG	31/1/02	NDY	Normandy Mining
31/7/00	HTA	Hutchison Telecommunications	30/4/02	CPU	Computershare
31/7/01	RMD	Resmed			
31/8/01	MIG	Macquarie Infrastructure Group			
28/9/01	SGT	Singtel			
31/1/02	IAG	Insurance Australia Group			
31/1/02	WFA	Westfield America			
28/2/02	JHX	James Hardie Industries NV			

Appendix 3: Constituents of the Closed Market Index

Appendix 4: Mathematical analysis of the CAPM

(a) The CAPM specification of “systematic” risk as a disguised tautology

Consider a full Market index M_t based on n stock prices $X_{i,t}$ where $i = 1, 2, \dots, n$, and t denotes time. The volume of stock i is denoted by v_i , and the initial value of the index is denoted by M_0 , so that

$$M_t = M_0 \frac{\sum_{i=1}^n v_i X_{i,t}}{\sum_{i=1}^n v_i X_{i,0}}$$

Let $R_{i,t} = (X_{i,t} - X_{i,t-1}) / X_{i,t-1}$ be the rate of return per unit time for the i th stock.

Alternatively, the following theory can be formulated in terms of the continuously compounded rate $R_{i,t} = \ln X_{i,t} - \ln X_{i,t-1}$; for short time increments there is very little numerical difference between the two types of rate.

The rate of return for the market index is given by

$$R_{M,t} = \frac{M_t - M_{t-1}}{M_{t-1}} = \frac{\sum_{i=1}^n v_i X_{i,t-1} R_{i,t}}{\sum_{i=1}^n v_i X_{i,t-1}} = \sum_{i=1}^n w_{i,t} R_{i,t}$$

where $w_{j,t} = v_j X_{j,t-1} / \sum_{i=1}^n v_i X_{i,t-1}$ is the capitalisation weight of stock j at time $t-1$, and

$$\sum_{i=1}^n w_{i,t} = 1.$$

Let $\mu_{i,t}$ and $\sigma_{i,t}$ denote the conditional mean and conditional standard deviation of $R_{i,t}$ respectively, given publicly available data relating to stock prices up to and including time $t-1$. In mathematical finance literature, conditional expectation given past history is often formally expressed as $\mu_{i,t} = E(R_{i,t} | \mathcal{F}_{t-1})$. According to the efficient market hypothesis, future returns are inherently unpredictable given the past history of the stock market.

(b) Mathematical analysis of the CAPM’s “market risk” specification assuming constant volatility and zero correlations between returns

One possibly over-simplistic statistical model which encapsulates the concept of informationally efficient markets is the case when $R_{1,t}, R_{2,t}, \dots, R_{n,t}$ are conditionally independent, with constant mean $\mu_{i,t} = \mu$ and volatility $\sigma_{i,t} = \sigma$. The reason for starting with this restrictive model is to emphasize the point that artefacts can arise when estimating betas by fitting regression lines, even in a situation when prices evolve in a completely random manner and all investments are in fact *equally* risky. This scenario, referred to as “Model I”, has the following statistical properties:

$$E(R_{M,t} | \mathcal{F}_{t-1}) = \mu_{M,t} = \sum_{i=1}^n w_{i,t} \mu = \mu$$

$$Var(R_{M,t} | \mathcal{F}_{t-1}) = \sigma_{M,t}^2 = \sigma^2 \sum_{i=1}^n w_{i,t}^2$$

$$Cov(R_{j,t}, R_{M,t} | \mathcal{F}_{t-1}) = w_{j,t} \sigma^2$$

From standard statistical linear model theory, the theoretical regression equation relating expected individual stock return to market return involves the ratio of the previous covariance and variance terms:

$$\begin{aligned} E(R_{j,t} | R_{M,t}, \mathcal{F}_{t-1}) &= E(R_{j,t} | \mathcal{F}_{t-1}) + \frac{Cov(R_{j,t}, R_{M,t} | \mathcal{F}_{t-1})}{Var(R_{M,t} | \mathcal{F}_{t-1})} (R_{M,t} - E(R_{M,t} | \mathcal{F}_{t-1})) \\ &= \mu + \frac{w_{j,t}}{\sum_{i=1}^n w_{i,t}^2} (R_{M,t} - \mu) \end{aligned} \quad (*)$$

Note that equation (*) has the same form as the classic CAPM model, where μ is interpreted as the risk-free rate and $w_{j,t} / \sum_{i=1}^n w_{i,t}^2$ is interpreted as the instantaneous beta coefficient of stock j at time t .

An empirical analysis of data generated by Model I would lend apparent support to the CAPM, especially if the capitalisation weights of the constituents have not drifted too far from their initial values in time window selected. In other words, a least squares regression analysis would reveal an approximately linear relationship existing between any individual stock return and the market return. The CAPM's security beta estimated retrospectively as the slope of the least squares line, would be shown in hindsight to describe the sensitivity of a particular stock to changes in the market index.

On further reflection, however, this empirical exercise can be seen to have very little practical or academic significance. First, for index constituents there is no need to resort to historical data for estimation of beta given that the capitalisation weights at time t are readily available and provide an up-to-date estimate $w_{j,t} / \sum_{i=1}^n w_{i,t}^2$, without imposing the assumption of time-invariance within [a suitably chosen] time window. Second, the existence of a regression equation does not imply a causal relationship: non-zero beta coefficients do not necessarily demonstrate that stock prices are being influenced by a common factor.

For Model I, the relationship between the returns of securities and the market exists only because the index is calculated directly from the stock prices. The assumptions of constant volatility and conditional independence between stocks implies that all stocks are equally risky. Apparent differences between betas are due simply to differences in index capitalisation weights, which in turn, are driven by volumes and prices. According to this model, the perception that it is less risky to invest in high volume, high priced stocks is just an illusion.

(c) *Mathematical analysis of the CAPM's "market risk" specification acknowledging individual security volatilities but no correlations between returns*

The fact that it is possible to construct one statistical model which apparently conforms to CAPM from an empirical perspective, yet refutes its theoretical value, could be argued as providing insufficient grounds for dismissal. Accordingly, Model II which is slightly more sophisticated – in which the volatilities $\sigma_{i,t} = \sigma_i$ vary between stocks but not over time, and the means $\mu_{i,t} = \mu + \kappa\sigma_i$ also vary between stocks but are related to volatility – is examined (the constant κ represents a risk premium, with positive values indicating risk aversion).

Model II has the following statistical properties.

$$\begin{aligned}
 E(R_{M,t} | \mathcal{F}_{t-1}) &= \mu_{M,t} = \sum_{i=1}^n w_{i,t}(\mu + \kappa\sigma_i) = \mu + \kappa \sum_{i=1}^n w_{i,t}\sigma_i \\
 Var(R_{M,t} | \mathcal{F}_{t-1}) &= \sigma_{M,t}^2 = \sum_{i=1}^n w_{i,t}^2 \sigma_i^2 \\
 Cov(R_{j,t}, R_{M,t} | \mathcal{F}_{t-1}) &= w_{j,t} \sigma_j^2 \\
 E(R_{j,t} | R_{M,t}, \mathcal{F}_{t-1}) &= \mu + \kappa\sigma_j \left(1 - \frac{w_{j,t} \sigma_j \sum_{i=1}^n w_{i,t} \sigma_i}{\sum_{i=1}^n w_{i,t}^2 \sigma_i^2} \right) + \frac{w_{j,t} \sigma_j^2}{\sum_{i=1}^n w_{i,t}^2 \sigma_i^2} (R_{M,t} - \mu) (**)
 \end{aligned}$$

Equation (**) has the form of the extended CAPM model which involves alphas (stock-specific intercepts) as well as betas. More specifically,

$$\begin{aligned}
 \beta_{j,t} &= \frac{w_{j,t} \sigma_j^2}{\sum_{i=1}^n w_{i,t}^2 \sigma_i^2} \\
 \alpha_{j,t} &= \kappa\sigma_j \left(1 - \frac{w_{j,t} \sigma_j \sum_{i=1}^n w_{i,t} \sigma_i}{\sum_{i=1}^n w_{i,t}^2 \sigma_i^2} \right)
 \end{aligned}$$

Once again, an empirical analysis of data generated by Model II would result in an approximately linear relationship between an individual stock and the market return, provided that the time interval over which the analysis is conducted is sufficiently short to ensure that neither capitalisation weights nor volatility change too dramatically within the interval. Again, the estimation of alpha and beta from fitting a least squares line is misguided, as an up-to-date estimate is provided by capitalisation weights and volatilities. However, unlike Model I, Model II requires the estimation of volatilities of individual securities from the historical data. Once again, an empirical verification using regression analysis does not establish that security prices are causally influenced by a common factor. Stocks with higher capitalisation weights have higher betas, but beta is also driven by volatility. Rather than using beta (historic or instantaneous) as a measure of risk, volatility is a more meaningful measure for this model. The capitalisation weights only appear to be relevant because of the way in which the market index is calculated.

(d) Mathematical analysis of the CAPM's "market risk" specification acknowledging individual security volatilities and non-zero covariances between securities

Markowitz's portfolio theory is based on the premise of non-zero covariance between anticipated future returns, so it is also of interest to consider Model III with non-independent stock returns. If Model II is generalised to include non-zero conditional covariance σ_{ij} between stocks i and j , then the resulting expression for $\beta_{j,t}$ becomes

$$\beta_{j,t} = \frac{w_{j,t}\sigma_j^2 + \sum_{k \neq j} w_{k,t}\sigma_{jk}}{\sum_{i=1}^n w_{i,t}^2\sigma_i^2 + \sum_{i=1}^n \sum_{k \neq i} w_{i,t}w_{k,t}\sigma_{ik}}$$

Empirical analysis of real data sets typically shows that covariances between stocks tend to be small and erratic relative to volatilities calculated over the same time window. Also many stock markets are dominated by a small number of stocks which account for most of the total capitalisation weight. So the extra terms in the numerator and denominator of $\beta_{j,t}$ for Model III relative to Model II will often not make material numerical impact.

The same general comments made for Models I and II continue to hold. In other words, empirical confirmation of the CAPM's regression equation does not prove a causal relationship, and only provides spurious historic estimates rather than instantaneous beta estimates. Although beta estimates are easy to calculate from the available historical data, more meaningful measures of market risk can be obtained directly from the volatilities of individual stocks.

Models II and III both include the precept of higher prices for less risky stocks, which in turn will result in capitalisation weights with some information content about risk. However, this information content will be clouded by many other sources. The calculation and interpretation of betas based on least squares regression lines overemphasises the relevance of capitalisation weights, due to the index construction methodologies which are typically used.

Appendix 5: Mathematical analysis of the fund manager evaluation methodology

Let $v_{i,k,t}$ be the volume of stock i and $C_{k,t}$ be the total portfolio capital held by investor k at time t , so that

$$v_i = \sum_{k=1}^m v_{i,k,t}$$

and

$$C_{k,t} = \sum_{i=1}^n v_{i,k,t} X_{i,t}.$$

The full market portfolio M_t can be decomposed as a capital-weighted sum of individual investor portfolios.

$$M_t = M_0 \frac{\sum_{i=1}^n v_i X_{i,t}}{\sum_{i=1}^n v_i X_{i,0}} = M_0 \frac{\sum_{k=1}^m \sum_{i=1}^n v_{i,k,t} X_{i,t}}{\sum_{k=1}^m \sum_{i=1}^n v_{i,k,0} X_{i,0}} = M_0 \frac{\sum_{k=1}^m C_{k,t}}{\sum_{k=1}^m C_{k,0}}$$

The k th individual investor portfolio return $R_{k,t}^{(P)}$ is given by

$$R_{k,t}^{(P)} = \frac{\sum_{i=1}^n v_{i,k,t-1} X_{i,t-1} R_{i,t}}{C_{k,t-1}}$$

and the market return can be expressed as a capital-weighted sum of individual portfolio returns.

$$R_t^{(M)} = \frac{\sum_{i=1}^n v_i X_{i,t-1} R_{i,t}}{\sum_{i=1}^n v_i X_{i,t-1}} = \frac{\sum_{k=1}^m C_{k,t-1} R_{k,t}^{(P)}}{\sum_{k=1}^m C_{k,t-1}}$$

Rearranging this equation,

$$R_t^{(M)} = \bar{R}_t^{(P)} + \frac{\sum_{k=1}^m C_{k,t-1} R_{k,t}^{(P)}}{\sum_{k=1}^m C_{k,t-1}} - \bar{R}_t^{(P)}$$

$$\bar{R}_t^{(P)} = R_t^{(M)} - \frac{\theta_t}{\bar{C}_{t-1}} \quad (1)$$

where \bar{C}_{t-1} is the unweighted average portfolio capital at time $t - 1$, $\bar{R}_t^{(P)}$ is the unweighted portfolio return, and θ_t is the unweighted sample covariance between portfolio capital and portfolio return, *i.e.*

$$\theta_t = \frac{1}{m} \sum_{k=1}^m C_{k,t-1} R_{k,t}^{(P)} - \bar{C}_{k,t-1} \times \bar{R}_t^{(P)}$$

Equation (1) refutes the argument that no-one can beat the market “on average” (Samuelson, 1974; Sharpe, 1991). If θ_t is negative, then the average portfolio return exceeds that of the market. Far from being a mere theoretical possibility, negative θ_t is quite plausible in the context of stock market investment. Large portfolios (typically of fund managers and institutional investors) have objectives which are typically focussed on achieving performance which is commensurate with peer portfolios or the market benchmark, rather the highest possible return. Although some small portfolios are operated by uninformed or risk-seeking participants, others may belong to those informed and unconstrained by liquidity or legislative issues. Under these circumstances, a negative association between portfolio size and return would hardly be surprising, resulting in a negative covariance θ_t .

There are a number of practical arguments which could be directed against the preceding conjecture. First, the imposition of transaction costs could reduce the average net return of actively managed portfolios below that of passive portfolios, even if average return is higher when transaction costs are ignored. However it is also possible for actively managed portfolios to outperform passive portfolios on average even where transaction costs are included. The mere existence of transaction costs does not in itself resolve the active versus passive debate.

Another potential argument is that a negative θ_t , arising from higher average returns on smaller portfolios, could be attributed solely to higher risks and portfolio concentration. However, in these circumstances, cognisance of how risk is proxied under portfolio (and the implicit limitations) is essential.

Rather than being based upon the entire market, commonly used market indices such as S&P/ASX200 are based on a dynamically changing part of the market. Such an index can be regarded for most purposes as being a very large, actively managed individual portfolio (although it is not included in sums over all investors). Only some stocks are included, subject to additions and deletions over time, and for some stocks only a fraction of the total volume is included. Using \sim to distinguish the market index portfolio from the full market, the expression for portfolio return can be translated as follows.

$$\tilde{R}_{M,t} = \frac{\sum_{i=1}^n \tilde{v}_{i,t-1} X_{i,t-1} R_{i,t}}{\sum_{i=1}^n \tilde{v}_{i,t-1} X_{i,t-1}}$$

The variance $\tilde{\sigma}_M^2$ of the market portfolio return need not be the same as the variance σ_M^2 of the full market return, as it is based on incomplete information. However, the former would be anticipated to be smaller than the latter due to the smoothing effect of deleting poorly performing stocks.

The apparent beta $\tilde{\beta}_{j,t}$ for stock j based on the market index portfolio can be expressed as

$$\begin{aligned}\tilde{\beta}_{j,t} &= \frac{Cov(R_{j,t}, \tilde{R}_{M,t})}{\tilde{\sigma}_{M,t}^2} = \frac{Cov(R_{j,t}, R_{M,t} + \tilde{R}_{M,t} - R_{M,t})}{\tilde{\sigma}_{M,t}^2} \\ &= \frac{\sigma_{M,t}^2}{\tilde{\sigma}_{M,t}^2} \beta_{j,t} + \frac{Cov(R_{j,t}, \tilde{R}_{M,t} - R_{M,t})}{\tilde{\sigma}_{M,t}^2}\end{aligned}$$

The first term shows that $\tilde{\beta}_{j,t}$ will be misleading if the volatility of the market index portfolio differs from that of the entire market. In particular, if the additions and deletions of stocks included in the index (which induce survivorship bias) reduce fluctuations in the index return, the ratio $\sigma_{M,t}^2 / \tilde{\sigma}_{M,t}^2$ will be greater than 1, resulting in a larger magnitude of the apparent beta. The second term shows that the apparent beta of stock j will increase if its return is positively correlated with misspecification differential of the market $\tilde{R}_{M,t} - R_{M,t}$.

One obvious explanation for positive correlations would be an over-representation of stock j within the market index portfolio. These two effects result in $\tilde{\beta}_{j,t}$ being a biased measure of risk, with the possibility that practitioners relying upon the CAPM being proxy of security risk are mistaken/mislead.

Appendix 6: Matrix of fund manager-gatekeeper dependencies (all asset classes)

			Gatekeepers										Total
		FUM (\$m)	Access	Frontier	Intech	JANA	Mercer	Russell	van Eyk	Various	Watson Wyatt	Other	
Fund managers	State Street Global Advisors	18,650	2%	61%	1%	19%	9%	2%	..	6%	1%	..	100%
	Barclays Global Investors	13,246	13%	36%	..	11%	14%	5%	1%	8%	12%	..	100%
	AMP Capital	10,321	..	13%	1%	24%	20%	6%	..	21%	15%	..	100%
	Members Equity	9,295	1%	66%	..	29%	2%	..	..	..	1%	..	100%
	Alliance Bernstein	7,812	..	25%	..	22%	12%	14%	..	2%	24%	..	100%
	Colonial First State	7,667	..	3%	..	9%	5%	6%	..	23%	53%	..	100%
	Vanguard	7,590	4%	9%	..	60%	7%	5%	..	11%	4%	..	100%
	Wellington	7,494	..	32%	1%	18%	11%	6%	..	14%	19%	..	100%
	Macquarie Bank Group	6,995	22%	21%	1%	24%	13%	12%	1%	6%	..	..	100%
	GMO	6,926	..	23%	1%	44%	7%	4%	..	14%	7%	..	100%
	Deutsche Bank	6,662	..	58%	1%	20%	5%	..	..	9%	7%	..	100%
	Other	5,806	1%	18%	..	7%	1%	1%	..	55%	17%	..	100%
	Credit Suisse	5,621	..	3%	..	42%	20%	11%	1%	3%	20%	..	100%
	Perpetual	5,143	..	54%	..	21%	9%	15%	..	..	1%	..	100%
	PIMCO	5,003	..	21%	..	28%	16%	4%	..	3%	27%	..	100%
	Balanced Equity Mgt	4,779	..	..	..	65%	..	..	..	35%	..	..	100%
	Capital Group	4,568	..	38%	1%	25%	5%	2%	1%	5%	23%	..	100%
	UBS	4,553	..	20%	..	53%	8%	4%	..	2%	13%	..	100%
	Bridgewater	4,509	..	19%	..	34%	..	..	..	42%	6%	..	100%
	Perennial	3,578	2%	16%	3%	22%	10%	10%	..	17%	21%	..	100%
	Maple Brown-Abbott	3,519	..	36%	..	22%	16%	6%	..	19%	1%	..	100%
	452 Capital	3,288	..	..	2%	70%	5%	..	..	22%	..	..	100%
	NSW TCorp	3,267	..	100%	..	..	..	..	..	..	..	..	100%
	Marathon	3,180	..	26%	..	28%	2%	..	..	19%	25%	..	100%
	Concord	2,864	..	38%	2%	12%	2%	..	..	46%	..	..	100%
	QIC	2,744	..	13%	..	5%	45%	..	..	26%	11%	..	100%
	Wallara	2,663	..	25%	..	38%	13%	7%	..	18%	..	..	100%
	Paradise	2,374	2%	19%	..	45%	17%	..	..	2%	15%	..	100%
	Lazard	2,239	..	6%	..	37%	1%	2%	..	9%	44%	..	100%
	MFS	2,071	..	3%	..	41%	19%	38%	..	..	..	..	100%

Appendix 6 (continued)

			Gatekeepers										
		FUM (\$m)	Access	Frontier	Intech	JANA	Mercer	Russell	van Eyk	Various	Watson Wyatt	Other	Total
Fund managers	BT Group	2,004	..	2%	2%	5%	13%	46%	..	14%	17%	..	100%
	Schroders	1,819	..	9%	4%	..	3%	35%	..	..	48%	..	100%
	FTIL	1,791	..	12%	2%	46%	2%	6%	..	18%	13%	..	100%
	Warakirri	1,728	1%	81%	..	13%	4%	..	..	..	1%	..	100%
	Lend Lease	1,727	..	..	..	50%	10%	14%	..	12%	14%	..	100%
	Bell	1,702	..	..	..	..	..	..	..	..	100%	..	100%
	Mellon	1,686	8%	17%	1%	43%	7%	..	..	23%	2%	..	100%
	Merrill Lynch	1,608	10%	16%	..	..	4%	17%	..	4%	48%	..	100%
	BlackRock	1,508	..	..	..	37%	5%	20%	..	30%	8%	..	100%
	Baillie Giff	1,465	..	66%	..	34%	..	..	..	..	..	..	100%
	Legg Mason	1,429	..	3%	..	15%	53%	11%	..	1%	17%	..	100%
	Fidelity	1,313	..	64%	..	..	28%	2%	..	..	6%	..	100%
	Suncorp	1,290	..	..	41%	3%	5%	..	3%	29%	19%	..	100%
	MLC	1,243	3%	6%	..	41%	16%	..	..	..	34%	..	100%
	Portfolio Partners	1,242	..	12%	..	5%	66%	11%	..	6%	..	..	100%
	Marvin & Palmer	1,205	1%	1%	1%	45%	..	..	..	52%	..	..	100%
	IXIS	1,188	1%	..	..	15%	2%	12%	..	71%	..	..	100%
	Ausbil	1,066	..	36%	..	32%	21%	..	..	11%	..	..	100%
	Brandes	1,028	..	..	..	100%	..	..	..	..	..	..	100%
	ING-ANZ	972	..	4%	..	61%	4%	7%	..	10%	13%	..	100%
	All others	27,452	1%	17%	..	25%	10%	10%	1%	23%	13%	..	100%
	Total	230,894	2%	27%	1%	26%	10%	6%	..	14%	13%	..	100%

Appendix 7: Matrix of fund manager-gatekeeper dependencies (Australian equities)

			Gatekeepers										
		FUM (\$m)	Access	Frontier	Intech	JANA	Mercer	Russell	van Eyk	Various	Watson Wyatt	Other	Total
Fund managers	Barclays Global Investors	5,561	9%	43%	..	4%	18%	4%	1%	12%	9%	..	100%
	Balanced Equity Mgt	4,779	..	..	..	65%	..	..	..	35%	..	..	100%
	GMO	4,465	..	36%	1%	30%	2%	4%	..	17%	11%	..	100%
	Perpetual	4,285	..	48%	..	25%	8%	18%	..	..	1%	..	100%
	State Street Global Advisors	4,198	..	35%	..	61%	1%	3%	..	..	..	..	100%
	Macquarie Bank Group	3,565	33%	39%	..	26%	1%	..	..	2%	..	..	100%
	Maple-Brown Abbott	3,460	..	37%	..	22%	15%	6%	..	19%	1%	..	100%
	452 Capital	3,288	..	..	2%	70%	5%	..	..	22%	..	..	100%
	UBS	3,271	..	28%	..	71%	..	..	..	..	1%	..	100%
	Concord	2,864	..	38%	2%	12%	2%	..	..	46%	..	..	100%
	Wallara	2,663	..	25%	..	38%	13%	7%	..	18%	..	..	100%
	AMP Capital	2,565	..	43%	..	14%	26%	..	..	..	18%	..	100%
	Deutsche Bank	2,446	..	40%	..	39%	..	..	..	21%	..	..	100%
	Paradice	2,374	2%	19%	..	45%	17%	..	..	2%	15%	..	100%
	Perennial	2,003	..	28%	2%	1%	10%	17%	..	30%	10%	..	100%
	Schroders	1,819	..	9%	4%	..	3%	35%	..	..	48%	..	100%
	NSW TCorp	1,736	..	100%	..	..	..	..	..	..	..	..	100%
	Members Equity	1,594	..	81%	..	19%	..	..	..	..	..	..	100%
	Warakirri	1,359	..	92%	..	8%	..	..	..	..	..	..	100%
	Merrill Lynch	1,307	13%	..	..	..	4%	21%	..	3%	59%	..	100%
	Colonial First State	1,245	..	..	..	..	..	..	..	..	100%	..	100%
	Portfolio Partners	1,174	..	12%	..	..	70%	11%	..	7%	..	..	100%
	Mellon	1,090	12%	11%	..	30%	9%	..	..	35%	3%	..	100%
	Ausbil	961	..	37%	..	35%	16%	..	..	12%	..	..	100%
	Lazard	947	..	..	..	30%	..	..	..	..	70%	..	100%
	ABN AMRO	934	..	..	..	..	59%	16%	..	25%	..	..	100%
	QIC	793	..	..	..	1%	99%	..	..	..	..	..	100%
	IAM	689	..	..	..	..	..	..	..	..	100%	..	100%
	Challenger	677	..	..	5%	48%	4%	..	..	37%	6%	..	100%
	IML	648	..	29%	..	4%	6%	..	..	34%	26%	..	100%

Appendix 7 (continued)

			Gatekeepers										Total
		FUM (\$m)	Access	Frontier	Intech	JANA	Mercer	Russell	van Eyk	Various	Watson Wyatt	Other	
Fund managers	BT Group	625	..	7%	..	2%	8%	45%	..	37%	..	..	100%
	Orion	602	..	..	..	36%	..	38%	..	26%	..	..	100%
	MIR	596	..	..	..	..	2%	49%	..	15%	33%	..	100%
	Vanguard	580	11%	..	..	89%	..	..	..	..	..	..	100%
	Alliance Bernstein	567	..	75%	..	9%	..	16%	..	..	..	..	100%
	Cooper Investors	552	..	..	..	100%	..	..	..	..	..	..	100%
	Renaissance	524	1%	36%	..	52%	8%	2%	..	..	..	..	100%
	Other	464	..	26%	..	8%	..	..	..	66%	..	..	100%
	Acorn	430	..	..	..	..	9%	..	..	25%	66%	..	100%
	Suncorp	328	..	..	13%	10%	..	..	2%	..	76%	..	100%
	Jenkins	323	..	17%	..	..	38%	45%	..	..	..	..	100%
	Constellation	303	..	..	..	..	..	..	..	..	100%	..	100%
	INVESCO	272	..	..	..	65%	..	..	..	35%	..	..	100%
	Hyperion	265	..	..	..	..	..	..	..	..	100%	..	100%
	PM Capital	244	..	62%	..	8%	..	..	..	30%	..	..	100%
	Tyndall	228	..	..	..	36%	9%	10%	11%	34%	..	..	100%
	CSAMA	200	..	..	..	84%	..	16%	..	..	..	..	100%
	GS JBWere	181	..	..	..	100%	..	..	..	..	..	..	100%
	EGG	160	..	7%	..	..	..	..	..	..	93%	..	100%
	Confluence	156	..	100%	..	..	..	..	..	..	..	..	100%
	All others	962	2%	1%	..	19%	24%	2%	4%	38%	10%	..	100%
	Total	77,321	3%	29%	..	29%	9%	6%	..	13%	11%	1%	100%

Appendix 8: Poor Governance Index constituents and descriptive statistics

REFERENCES

ABS (2006a), *Managed Funds, Australia - June 2006*, Cat. No. 5655.0, Australian Bureau of Statistics, Canberra.

ABS (2006b), *Financial Accounts, Australian National Accounts - June 2006*, Cat. No. 5232.0, Australian Bureau of Statistics, Canberra.

Ali. P. (2000) 'Riskless Trading: Passport Options, Fund Managers and the Prudent Investor Rule', *Company and Securities Law Journal*, Vol. 18, pp. 209-212.

Ali, P. and Gold, M. (2001) 'The new model index fund: Why exchange-traded funds are gathering fans', *JASSA*, Vol. 1, No. 3, pp. 14-6.

Ali, P. and Gold, M. (2002) *Socially Responsible Investments and Implications for Superannuation Trustees and other Investment Fiduciaries*, Centre for Corporate Law and Securities Regulation, University of Melbourne Law School.

Ali, P. and Gold, M. (2004a) 'Hedge fund investing: Looking ahead', *Derivatives Use, Trading and Regulation*, Vol. 10, No. 3, pp. 255-67.

Ali, P. and Gold, M. (2004b) 'The future of hedge fund investing', *Journal of the Financial Services Institute of Australasia (JASSA)*, Vol. 1, No. 1, pp. 13-6.

Ali, P., Stapledon, G. and Gold, M. (2003) *Corporate Governance and Investment Fiduciaries*, Thomson Lawbook Co, Pyrmont.

Allen Consulting Group (2002) *Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities: A Report for the Australian Competition and Consumer Commission*, Allen Consulting Group, Sydney.

Allen, D., McGoun, E. and Kester, G. (2000) 'A sociological explanation of financial market growth', *International Review of Financial Analysis*, Vol. 9, No. 4, pp. 421-32.

Allen, F. and Gale, D. (1994) *Financial Innovation and Risk Sharing*, MIT Press, Cambridge.

Anand, V. (2004) 'Pension funds take a tough stance in consultant dealings', *Pensions & Investments*, Vol. 32, No. 13, pp. 3-5.

Anderson, D., Lynch, A. and Mathiou, N. (1990) 'Behaviour of CAPM anomalies in smaller firms: Australian evidence', *Australian Journal of Management*, Vol. 15, No. 1, pp. 1-38.

Anderson, R. and Reeb, D. (2003) 'Founding-Family Ownership and Firm Performance: Evidence from the S&P500', *Journal of Finance*, Vol. 58, No. 3, pp. 1301-28.

Andrusiak, K. (2006) 'Foreign firms back in indexes', *The Australian*, 29 September, pp. 19.

APRA (1997) *Superannuation Circular II.D.7 Derivatives*, Australian Prudential Regulation Authority, Sydney.

APRA (1998) *Superannuation Circular II.D.4 Borrowing by Superannuation Entities*, Australian Prudential Regulation Authority, Sydney.

APRA (1999) *Superannuation Circular No. II.D.1 Managing Investments and Investment Choice*, Australian Prudential Regulation Authority, Sydney.

APRA (2005) *Superannuation Trends – June*, Australian Prudential Regulation Authority, Sydney.

APRA (2006) *Superannuation Trends – June*, Australian Prudential Regulation Authority, Sydney.

Arnott, R., Berkin, A. and Ye, J. (2000) 'How Well Have Taxable Investors Been Served in the 1980s and 1990s?', *Journal of Portfolio Management*, Vol. 26, No. 4, pp. 84-93.

Arnott, R. and Darnell, M. (2003) 'Active versus passive management: Framing the decision', *Journal of Investing*, Vol. 12, No. 1, pp. 31-7.

Arnott, R., Hsu, J. and Moore, P. (2005) 'Fundamental Indexation', *Financial Analysts Journal*, Vol. 61, No. 2, pp. 83-99.

Arvedlund, E. (2003) 'Other people's money', *Barron's*, Vol. 83, No. 27, pp. L7.

ASIC (2000) *IR00/31 - ASIC interim guidance on market stabilisation*, information release, Australian Securities and Investments Commission, Sydney.

ASIC (2004) *ASIC completes review of Australian managed fund practices: late trading and market timing*, media release 04-251, 6 August, Australian Securities and Investments Commission, Sydney.

ASIC (2005a), *Policy Statement 168 Disclosure: Product Disclosure Statements (and other disclosure obligations)*, Australian Securities and Investments Commission, Sydney.

ASIC (2005b), *Policy Statement 175 Licensing: Financial product advisers – Conduct and disclosure*, Australian Securities and Investments Commission, Sydney.

ASIC (2005c) *ASIC policy proposal: Market stabilisation*, Australian Securities and Investments Commission, Sydney.

ASIC (2006) *Managing conflicts of interest in the financial services industry*, ASIC Discussion Paper, Australian Securities and Investments Commission, Sydney.

Aspect Financial (2005) *Fin Analysis* database, Aspect Huntley Pty. Ltd., Sydney.

ASX CGC (2003) *ASX Principles of Good Corporate Governance and Best Practice Recommendations*, ASX Corporate Governance Council, Sydney.

Australian Institute of Company Directors (2003) *Results of an AICD survey of directors of Australian listed companies on the ASX Corporate Governance Council Principles of Good Corporate Governance and Best Practice Recommendations*, media release, 25 September, Australian Institute of Company Directors, Sydney.

Australian Treasury (2002) *Intergenerational Report 2002-03*, Department of Finance, Australian Government, Canberra.

Axiss Australia (2004a) *Executive Briefing – Managed Funds in Australia*, Axiss Australia, Sydney.

Axiss Australia (2004b) *Distribution of Managed Funds in Australia: platforms and direct entry*, Axiss Australia, Sydney.

Axiss Australia (2006) *Australia: A Global Financial Services Centre Benchmark Report August 2006*, Axiss Australia, Sydney.

Ball, R., Brown, P. and Officer, R. (1976) 'Asset pricing in the Australian industrial equity market', *Australian Journal of Management*, Vol. 1, No. 1, pp. 1-31.

Banz, R. (1981) 'The Relationship Between Return and Market Value of Common Stocks', *Journal of Financial Economics*, Vol. 9, No. 1, pp. 3-18.

Barber, B and Odean, T. (2001) 'Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment', *Quarterly Journal of Economics*, Vol. 116, No. 1, pp. 261-292.

Barberis, N., Shleifer, A. and Vishny, R. (1998) 'A Model of Investor Sentiment', *Journal of Financial Economics*, Vol. 49, No. 3, pp. 307-43.

Barclays Global Investors (2003) *2003 Profile*, Barclays Global Investors, San Francisco.

Barrett, J. (2007) 'A platform to a money train', *The Australian Financial Review*, 14 March, pp. 31.

Bartholdy, J. and Peare, P. (2001) The Relative Efficiency of Beta Estimates, working paper, Aarhus School of Business available at: <http://ssrn.com/abstract=263745>

Basu, S. (1977) 'The Investment Performance of Common Stocks in Relation to their Price-Earnings Ratios: A Test of the Efficient Markets Hypothesis', *Journal of Finance*, Vol. 32, No. 2, pp. 663-82.

Basu, S. (1983) 'The Relationship Between Earnings Yield, Market Value and Return for NYSE Common Stocks: Further Evidence', *Journal of Financial Economics*, Vol. 12, No. 1, pp. 129-56.

Bauer, R., Guenster, N. and Otten, R. (2004) 'Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance', *Journal of Asset Management*, Vol. 5, No. 2, pp. 91-104.

Bebchuk, L. (2005) 'The Case For Increasing Shareholder Power', *Harvard Law Review*, Vol. 118, No. 3, pp. 833-914.

Bechalier, L. (1900) *Théorie de la Spéculation*", PhD thesis, Annales de l'Ecole normale supérieure

Beedles, W., Dodd, P. and Officer, R. (1988) 'Regularities in Australian Share Returns', *Australian Journal of Management*, Vol. 13, No. 1, pp. 1-29.

Beneish, M. and Whaley, R. (1996) 'An Anatomy of the "S&P game": The Effect of Changing the Rules', *Journal of Finance*, Vol. 51, No. 5, pp. 1909-30.

Beneish, M. and Whaley, R. (2002) 'S&P500 index replacements', *Journal of Portfolio Management*, Vol. 29, No. 1, pp. 51-61.

Berle, A. and Means, G. (1932) *The Modern Corporation and Private Property*, Harcourt, Brace & World, New York.

Berkowitz, M. and Qui, J. (2003) 'Ownership, risk and performance of mutual fund management companies', *Journal of Economics and Business*, Vol. 55, No. 2, pp. 109–34.

Bernstein, P. (1995) *Style Investing*, John Wiley & Sons, New York

Bernstein, P. (2003) 'Points of Inflection: Investment Management Tomorrow', *Financial Analysts Journal*, Vol. 59, No. 4, pp. 18-23.

Bhagat, S. and Black, B. (2002) 'The Non-Correlation Between Board Independence and Long-Term Firm Performance', *Journal of Corporation Law*, Vol. 27, No. 2, pp. 231-73.

Bines, H. and Thel, S. (2004) *Investment Management Law and Regulation* (2nd edn.), Aspen Publishers, New York.

Bird, R., Chin, H. and McCrae, M. (1983) 'The Performance of Australian Superannuation Funds', *Australian Journal of Management*, Vol. 8, No. 1, pp. 49-69.

Black, F. (1989) 'Should You Use Stocks To Hedge Your Pension Liability?', *Financial Analysts Journal*, Vol. 45, No. 1, pp. 10-3.

Black, F. (1993) 'Beta and Return', *Journal of Portfolio Management*, Vol. 20, No. 1, pp. 8-18.

Black, F., Jensen, M. and Scholes, M. (1972) 'The Capital Asset Pricing Model: Some Empirical Tests' in *Studies in the Theory of Capital Markets* (Jensen, M. ed.), Praeger Publishing, New York.

Black, F. and Scholes, M. (1974) 'From Theory to a New Financial Product', *Journal of Finance*, Vol. 29, No. 2, pp. 399-412.

Blake, C., Elton, E. and Gruber, M. (1993) 'The Performance of bond mutual funds', *Journal of Business*, Vol. 66, No. 3, pp. 371-403.

Blake, D. (1992) *Modelling Pension Fund Investment Behaviour*, Routledge, London.

Blake, D., Lehmann, B. and Timmermann, A. (2002) 'Performance clustering and incentives in the UK pension fund industry', *Journal of Asset Management*, Vol. 3, No. 2, pp. 173-95.

Block, S. and French, D. (2002) 'The Effect of Portfolio Weighting on Investment Performance Evaluation: The Case of Actively Managed Mutual Funds', *Journal of Economics and Finance*, Vol. 26, No. 1, pp. 16-30.

Blume, M. (1971) 'On the Assessment of Risk', *Journal of Finance*, Vol. 26, No. 1, pp. 1-10.

Bodie, Z., Kane, A. and Marcus, A. (2005) *Investments* (6th edn.), McGraw-Hill, New York.

Bogle, J. (1998) 'The Implications of Style Analysis for Mutual Fund Performance Evaluation', *Journal of Portfolio Management*, Vol. 24, No.4, pp. 34-42.

Bogle, J. (2002) 'An Index Fund Fundamentalists', *Journal of Portfolio Management*, Vol. 28, No. 3, pp. 31-8.

Boldin, M. and Cici, G. (2006) The Index Fund Paradox, SSRN working paper available at: <http://ssrn.com/abstract=686872>

Börsch-Supan, A. (2006) 'Demographic Change, Saving and Asset Prices: Theory and Evidence', in *Demography and Financial Markets: Proceedings of G-20 workshop*, Reserve Bank of Australia and Australian Treasury, Sydney, pp. 132-65.

Brailsford, T. and Faff, R. (1993) 'Modelling Australian Stock Market Volatility', *Australian Journal of Management*, Vol. 18, No. 2, pp. 109-32.

Brailsford, T., Faff, R. and Oliver, B. (1997) 'Research Design Issues in the Estimation of Beta' in *McGraw-Hill Series in Advanced Finance* (Brailsford, T. and Faff, R. eds.), Vol. 1, McGraw-Hill, Sydney.

Brailsford, T. and Josev, T. (1997) 'The impact of return interval on the estimation of systematic risk', *Pacific-Basin Finance Journal*, Vol. 15, No. 3, pp. 357-76.

Brealey, R. (2000) 'Stock prices, stock indexes and index funds', *Bank of England Quarterly Bulletin*, Vol. 40, No. 1, pp. 61-9.

Brealey, R., Myers, S. and Allen, F. (2003) *Principles of Corporate Finance* (7th edn.), McGraw-Hill/Irwin, Boston.

Brennan, M. and Schwartz, E. (1985) 'On the Geometric Mean Index: A Note', *Journal of Financial and Quantitative Analysis*, Vol. 20, No. 1, pp. 119-23.

Brickley, J., Coles, J. and Jarrell, G. (1997) 'Leadership structure: separating the CEO and chairman of the board', *Journal of Corporation Finance*, Vol. 3, No. 3, pp. 189-220.

Brinson, G., Hood, L. and Beebower, G. (1986) 'Determinants of Portfolio Performance', *Financial Analysts Journal*, Vol. 42, No. 1, pp. 39-44.

Brinson, G., Singer, B. and Beebower, G. (1991) 'Determinants of Portfolio Performance II: An Update', *Financial Analysts Journal*, Vol. 47, No. 1, pp. 40-48.

Brooks, R. (2000) What Will Happen to Financial Markets When the Baby Boomers Retire?, working paper WP00/18, International Monetary Fund, Washington.

Brooks, R. (2002) 'Asset Market Effects of the Baby Boom and Social Security Reform', *American Economic Review*, Vol. 92, No. 2, pp. 402-6.

Brown, S., Goetzmann, W., Ibbotson, R. and Ross, S. (1992) 'Survivorship Bias in Performance Studies', *Review of Financial Studies*, Vol. 5, No. 4, pp. 553-80.

Brown, K., Harlow, W. and Starks, L. (1996) 'Of Tournaments and Temptations: An Analysis of Managerial Incentives in the Mutual Fund Industry', *Journal of Finance*, Vol. 51, No. 1, pp. 85-110.

Burkhart, M., Punanzi, F. and Shleifer, A. (2003) 'Family Firms', *Journal of Finance*, Vol. 58, No. 5, pp. 2167-201.

Burr, B. (2004) 'Consultants under the gun with SEC probe', *Pensions & Investments*, Vol. 32, No. 1, pp. 1.

Busse, J. (2001) 'Another Look at Mutual Fund Tournaments', *Journal of Financial and Quantitative Analysis*, Vol. 36, No. 1, pp. 53-73.

Caldwell, B. (1991) 'Clarifying Popper', *Journal of Economic Literature*, Vol. 29, No. 1, pp. 1-33.

Camara, K. (2005) 'Classifying Institutional Investors', *Journal of Corporation Law*, Vol. 30, No. 2, pp. 219-253.

Canina, L., Michaely, R., Thaler, R. and Womack, K. (1998) 'Caveat Compounder: A Warning About Using the Daily CRSP Equal-Weighted Index to Compute Long-Run Excess Returns', *Journal of Finance*, Vol. 53, No. 1, pp. 403-16.

Carhart, M. (1997) 'On Persistence in Mutual Fund Performance', *Journal of Finance*, Vol. 52, No. 1, pp. 57-82.

Carleton, W., Nelson, J. and Weisbach, M. (1998) 'The Influence of Institutions on Corporate Governance through Private Negotiations: Evidence from TIAA-CREF', *Journal of Finance*, Vol. 53, No. 4, pp. 1335-62.

Chan, L. and Lakonishok, J. (1993) 'Institutional trades and intraday stock price behavior', *Journal of Financial Economics*, Vol. 33, No. 2, pp. 173-89.

Chen, N., Roll, R. and Ross, S. (1986) 'Economic forces and the stock market: testing the APT and alternative asset pricing theories', *Journal of Business*, Vol. 53, No. 9, pp. 383-403.

Chevalier, J. and Ellison, G. (1997) 'Risk Taking by Mutual Funds as a Response to Incentives', *Journal of Political Economy*, Vol. 105, No. 6, pp. 1167-1200.

Clare, R. (2005) *Implications of choice of superannuation fund legislation for members, employers and funds*, Association of Superannuation Funds Australia, Sydney.

Clark, G. (2000) *Pension Fund Capitalism*, Oxford University Press, Oxford.

Clarke, R. (1981) 'The Four Stages of Capitalism', *Harvard Law Review* Vol. 94, pp. 561-82.

Coffee, J. (2004) 'What Caused Enron? A Capsule Social and Economic History of the 1990s', *Cornell Law Review*, Vol. 89, No. 2, pp. 269-309.

Cohen, K. and Pogue, J. (1967) 'An Empirical Evaluation of Alternative Portfolio Selection Models', *Journal of Business*, Vol. 40, No. 2, pp. 166-93.

Committee on the Global Financial System (2003) *Incentive structures in institutional asset management and their implications for financial markets*, Bank for International Settlements, Basel.

Commonwealth Bank of Australia (2006), *Issue of Funds Management Securities*, media release, Commonwealth Bank of Australia, 18 September, Sydney.

Coulton, J. and Taylor, S. (2004) 'Directors' Duties and Corporate Governance: Have We Gone Too Far?', *Australian Accounting Review*, Vol. 14, No. 1, pp. 17-24.

Cowles, A. (1933) 'Can Stock Market Forecasters Forecast?', *Econometrica*, Vol. 1, No. 3, pp. 309-24.

Craswell, A, Taylor, S. and Saywell, R. (1997) 'Ownership structure and corporate performance: Australian evidence', *Pacific-Basin Finance Journal*, Vol. 5, No. 3, pp. 301-23.

Cutler, D., Poterba, J. and Summers, L. (1990) 'Speculative Dynamics and the Role of Feedback Traders', *American Economic Review*, Vol. 80, No. 2, pp. 63-68

Daniel, K., Grinblatt, M., Titman, S. and Wermers, R. (1997) 'Measuring Mutual Fund Performance with Characteristic-Based Benchmarks', *Journal of Finance*, Vol. 52, No. 3, pp. 1035-58.

Daniel, K., Hirshleifer, D. and Subrahmanyam, A. (1998) 'Investor Psychology and Security Market Under and Over-reactions', *Journal of Finance*, Vol. 53, No. 6, pp. 1839-85.

Dass, N., Massa, M. and Patgiri, R. (2005) Mutual Funds and Bubbles: The Surprising Role of Contractual Incentives, SSRN working paper available at: <http://ssrn.com/abstract=759365>.

Datastream (2004) *Datastream*, financial database, Thompson Financial, Connecticut.

Davis, P. (1996), 'The Role of Institutional Investors in the Evolution of Financial Structure and Behaviour', in *The Future of the Financial System: Conference Proceedings*, Reserve Bank of Australia, Sydney.

Davis, E. (2006) 'How Will Ageing Affect the Structure of Financial Markets?', in *Demography and Financial Markets: Proceedings of G-20 workshop*, Reserve Bank of Australia and Australian Treasury, Sydney pp. 266-95.

Davis, J. (2001) 'Mutual Fund Performance and Manager Style', *Financial Analysts Journal* Vol. 57, No. 1, pp. 19-27.

Day, S., Green, S. and Plymen, J. (1994) 'How good is your investment manager?' *OR Insight*, Vol. 8, No. 1, pp. 10-20.

De Bondt, W. and Thaler, R. (1985) 'Does the Stock Market Overreact?', *Journal of Finance*, Vol. 40, No. 3, pp. 793-805.

De Bondt, W. and Thaler, R. (1987) Further Evidence on Investor Overreaction and Stock Market Seasonality, *Journal of Finance*, Vol. 42, No. 3, pp. 557-581.

De Bondt, W. and Thaler, R. (1990) 'Do Security Analysts Overreact?', *American Economic Review*, Vol. 80, No. 2, pp. 52-7.

Dedman, E. (2002) 'The Cadbury Committee recommendations on corporate governance - a review of compliance and performance impacts', *International Journal of Management Reviews*, Vol. 4, No. 4, pp. 335-52.

Dedman, E. and Lin, S. (2002) 'Shareholder wealth effects of CEO departures: evidence from the UK', *Journal of Corporate Finance*, Vol. 8, No. 3, pp. 189-220.

Degryse, H, Van Achter, M. and Wuyts, G. (2006) Crossing Networks: Competition and Design, TILEC Discussion Paper DP 2006-015, Tilburg University,

Del Guercio, D. (1996) 'The distorting effects of the prudent-man laws on institutional equity investments', *Journal of Financial Economics*, Vol. 40, No. 1, pp. 31-62.

Del Guercio, D. and Tkac, P. (2002) 'The determinants of the flow of funds of managed portfolios: Mutual funds vs. pension funds', *Journal of Financial and Quantitative Analysis*, Vol. 37, No. 4, pp. 523-58.

De Long, B., Shleifer, A., Summers, L. and Waldmann, R. (1990a) 'Noise Trader Risk in Financial Markets', *Journal of Political Economy*, Vol. 98, No.4, pp. 703-38.

De Long, B., Shleifer, A., Summers, L. and Waldmann, R. (1990b) 'Positive Feedback Investment Strategies and Destabilizing Rational Speculation', *Journal of Finance*, Vol. 45, No. 2, pp. 379-95.

Demsetz, H. (1983) 'The structure of ownership and the theory of the firm', *Journal of Law and Economics*, Vol. 25, pp. 375-90.

Demsetz, H. and Lehn, K. (1985) 'The Structure of Corporate Ownership: Causes and Consequences', *Journal of Political Economy*, Vol. 93, No. 6, pp. 1155-77.

Demsetz, H. and Villalonga, B. (2001) 'Ownership structure and corporate performance', *Journal of Corporate Finance*, Vol. 7, No. 3, pp. 209-33.

Denis, D., McConnell, J., Ovtchinnikov, A. and Yu, Y. (2003) 'S&P 500 Index Additions and Earnings Expectations', *Journal of Finance*, Vol. 58, No. 5, pp. 1821-40.

de Vassal, V. (2001) 'Risk Diversification Benefits of Multiple-Stock Portfolios', *Journal of Portfolio Management*, Vol. 27, No. 2, pp. 32-9.

diBartolomeo, D. (1999) 'A Radical Proposal for the Operation of Multi-Manager Investment Funds', working paper, Northfield Information Services.

Dimson, E. (1979) 'Risk Measurement When Shares are Subject to Infrequent Trading', *Journal of Financial Economics*, Vol. 7, No. 2, pp. 197-226.

Dishi, E., Gallagher, D. and Parwada, J. (2005) Institutional Investment Flows and Fund Manager Turnover: Evidence from Pension Plan Mandate Terminations, working paper, School of Banking and Finance, University of New South Wales.

Downen, R. and Mann, T. (2004) 'Mutual fund performance, management behaviour, and investor costs', *Financial Services Review*, Vol. 13, No. 1, pp. 79-92.

Drucker, P. (1976) *The Unseen Revolution: How Pension Fund Socialism Came to America*, Heinemann, London.

Durie, J. (2003) 'Super Industry Conflicts Take The Cake', *The Australian Financial Review*, 19 July, pp. 72.

Ellis, C. (1975) 'The loser's game', *Financial Analysts Journal*, Vol. 31, No. 4, pp. 19-26.

Ellis, C. (2001) 'Will business success spoil the investment management profession?', *Journal of Portfolio Management*, Vol. 27, No. 3, pp. 11-6.

Elton, E. and Gruber, M. (1973) 'Estimating the Dependence Structure of Share Prices-Implications for Portfolio Selection', *Journal of Finance*, Vol. 28, No. 5, pp. 1203-32.

Elton, E. and Gruber, M. (2004) 'Optimum Centralized Portfolio Construction with Decentralized Portfolio Management', *Journal of Financial and Quantitative Analysis*, Vol. 39, No. 3, pp. 481-94.

Elton, E., Gruber, M. and Blake, C. (1996a) 'The Persistence of Risk-Adjusted Mutual Fund Performance', *Journal of Business*, Vol. 69, No. 2, pp. 133-57.

Elton, E., Gruber, M. and Blake, C. (1996b) 'Survivorship Bias and Mutual Fund Performance', *Review of Financial Studies*, Vol. 9, No. 4, pp. 1097-120.

Elton, E., Gruber, M. and Busse, J. (2004) 'Are Investors Rational? Choices among Index Funds', *Journal of Finance*, Vol. 59, No. 1, pp. 261-88

Elton, E., Gruber, M., Das, S. and Hlavka, M. (1993) 'Efficiency with Costly Information: A Reinterpretation of Evidence from Managed Portfolios', *Review of Financial Studies*, Vol. 6, No. 1, pp. 1-22.

Elton, E., Gruber, M. and Padberg, M. (1979) 'Simple Criteria for Optimal Portfolio Selection: The Multi-Index Case' in *Portfolio Theory, 25 Years After, Studies in Management Sciences* (Elton, E., and Gruber, M. eds), North-Holland Publishing Co, New York.

Enderle, F., Pope, B. and Siegel, L. (2003) 'Broad-capitalisation indexes of the U.S. equity market', *Journal of Investing*, Vol. 12, No. 1, pp. 11-23.

Engle, R. (1982) 'Autoregressive Conditional Heteroskedasticity with Estimates of the Variance of U.K. Inflation', *Econometrica*, Vol. 50, No. 4, pp. 987-1008.

Ennis, R. (2001) 'The Case for Whole-Stock Portfolios', *Journal of Portfolio Management*, Vol. 27, No. 3, pp. 17-26.

Ennis, R. and Sebastian, M. (2002) 'The Small-Cap Alpha Myth', *Journal of Portfolio Management*, Vol. 28, No. 3, pp. 11-6.

Evans, J. and Archer, S. (1968) 'Diversification and the Reduction of Dispersion: An Empirical Analysis', *Journal of Finance*, Vol. 23, No. 5, pp. 761-767.

Faccio, M. and Lasfer, M. (2000) 'Do occupational pension funds monitor companies in which they hold large stakes?', *Journal of Corporate Finance*, Vol. 6, No. 1, pp. 71-110.

Faff, R. (2001) 'An Examination of the Fama and French Three-Factor Model Using Commercially Available Factors', *Australian Journal of Management*, Vol. 26, No. 1, pp. 1-17.

Fama, E. (1965) 'Behavior of Stock Market Prices', *Journal of Business*, Vol. 38, No. 1, pp. 34-101.

Fama, E. (1970) 'Efficient Capital Markets: A Review of Theory and Empirical Work', *Journal of Finance*, Vol. 25, No. 2, pp. 383-417.

Fama, E. (1991) 'Efficient Capital Markets: II', *Journal of Finance*, Vol. 46, No. 5, pp. 1575-617.

Fama, E. (1998) 'Market efficiency, long-term returns, and behavioral finance', *Journal of Financial Economics*, Vol. 49, No. 3, pp. 283-306.

Fama, E. and French, K. (1988) 'Dividend Yields and Expected Stock Returns', *Journal of Financial Economics*, Vol. 22, No. 1, pp. 3-25.

Fama, E. and French, K. (1992) 'The Cross-Section of Expected Stock Returns', *Journal of Finance*, Vol. 47, No. 2, pp. 427-65.

Fama, E. and Jensen, M. (1983) 'Separation of ownership and control', *Journal of Law and Economics*, Vol. 26, pp. 301-25.

Fama, E. and Macbeth, J. (1973) 'Risk, Return, and Equilibrium: Equilibrium Tests', *Journal of Political Economy*, Vol. 81, No. 3, pp. 607-36.

Fernando, D., Klapper, L., Sulla, V. and Vittas, D. (2003) The Global Growth of Mutual Funds, working paper No. 3055, World Bank, Washington.

Fernholz, R. (1998) 'Crossovers, Dividends, and the Size Effect', *Financial Analysts Journal*, Vol. 54, No. 3, pp. 73-8.

Fitzherbert, R. (2001) 'Volatility, beta and return. Was there ever a meaningful relationship?', *Australian Actuarial Journal*, Vol. 7, No. 4, pp. 681-713.

Frankfurter, G. (1976) 'The Effect of "Market Indexes" on the Ex-Post Performance of the Sharpe Portfolio Selection Model', *Journal of Finance*, Vol. 31, No. 3, pp. 949-55.

Frankfurter, G. and McGoun, E. (1996) *Toward Finance with Meaning: The Methodology of Finance, What it is and it can be*, JAI Press, Connecticut.

Frankfurter, G. and Phillips, H. (1979) 'Measuring Risk and Expectation Bias in Well Diversified Portfolios' in *Portfolio Theory, 25 Years After, Studies in Management Sciences* (Elton, E., and Gruber, M. eds.), North-Holland Publishing Co., New York.

Frankfurter, G., Phillips, H. and Seagle, J. (1976) 'Performance of the Sharpe Portfolio Selection Model: A Comparison', *Journal of Financial and Quantitative Analysis*, Vol. 11, No. 2, pp. 195-204.

Fridson, M. (1993) 'Exactly What Do You Mean By Speculation?', *Journal of Portfolio Management*, Vol. 20, No. 1, pp. 29-39.

Friedman, M. (1953) 'The Methodology of Positive Economics' in *Essays in Positive Economics*, University of Chicago Press, Chicago.

Gabaldon, T. (2001) 'John Law, with a Tulip, in the South Seas: Gambling and the Regulation of Euphoric Market Transactions', *Journal of Corporation Law*, Vol. 26, No. 2, pp. 225-84.

Gallagher, D. (2001) 'Attribution of Investment Performance: An Analysis of Australian Pooled Superannuation Funds', *Accounting & Finance*, Vol. 41, Nos. 1-2, pp. 41-62.

Gallagher, D. (2002) Investment Manager Characteristics, Strategy and Fund Performance, PhD thesis, School of Economics and Business, University of Sydney.

Gallagher, D. and Frino, A. (2001) 'Tracking S&P500 Index Funds', *Journal of Portfolio Management*, Vol. 28, No.1, pp. 44-55.

Garman, M. (1976) 'Market Microstructure', *Journal of Financial Economics*, Vol. 3, No. 3, pp. 257-75.

Gastineau, G. (2002) 'Equity Index funds Have Lost Their Way', *Journal of Portfolio Management*, Vol. 28, No. 2, pp. 55-64.

Geanakopulos, J., Magill, M. and Quinzii, M. (2004) 'Demography and the Long-Run Predictability of the Stock Market', *Brookings Papers on Economic Activity*, Vol. 1, No. 1, pp. 241-325.

Gillan, S. and Starks, L. (2000) 'Corporate Governance Proposals and Shareholder Activism: the Role of Institutional Investors', *Journal of Financial Economics*, Vol. 57, No. 2, pp. 275-305.

Gillan, S. and Starks, L. (2003) 'Corporate Governance, Corporate Ownership, and the Role of Institutional Investors: A Global Perspective', *Journal of Applied Finance*, Vol. 13, No. 2, pp. 4-22.

Goetzmann, W. and Ibbotson, R. (1994) 'Do Winners Repeat?', *Journal of Portfolio Management*, Vol. 20, No. 2, pp. 9-18.

Gold, M. (2001) 'Indexing – the fundamental difference', *JASSA*, No. 1, Vol. 1, pp. 27-8.

Gold, M. (2004) 'Investing in pseudo-science: the active versus passive debate', *JASSA*, No. 1, Vol. 3, pp. 2-6.

Gold, M. (2006a) 'Equity issuance trends in Australia's listed investment fund markets' in *Initial Public Offerings: An International Perspective* (Gregoriou, G., ed.), Butterworth-Heinemann, Burlington.

Gold, M. (2006b) 'Corporate governance, activism, and the role of trustees', *JASSA*, No. 1, Vol. 2, pp. 34-40.

Gold, M. (2006c) 'Corporate Governance Reform: The Intersection of Investment Fiduciaries and Corporate Issuers' in *Corporate Governance after Sarbanes Oxley* (P. Ali and G. Gregoriou eds.), John Wiley & Sons, New York.

Gompers, P. and Metrick A. (2001) 'Institutional Investors and Equity Prices', *Quarterly Journal of Economics*, Vol. 116, No. 1, pp. 229-59.

Gompers, P., Ishii, J. and Metrick, A. (2003) 'Corporate Governance and Equity Prices', *Quarterly Journal of Economics*, Vol. 118, No. 1, pp. 107-56.

Graham, B. and Dodd, G. (1934) *Security Analysis*, McGraw-Hill, New York.

Graham, B. and Dodd, G. (1940) *Security Analysis* (2nd edn.), McGraw-Hill, New York.

Graham, B., Dodd, G. and Cottle, D. (1962) *Security Analysis* (3rd edn.), McGraw-Hill, New York.

Grinblatt, M. and Titman, S. (1993) 'Performance Measurement Without Benchmarks: An Examination of Mutual Fund Returns', *Journal of Business*, Vol. 66, No. 1, pp. 47-68.

Grinold, R. (1992) 'Are Benchmark Portfolios Efficient?', *Journal of Portfolio Management*, Vol. 19, No. 1, pp. 34-40.

Groenewold, N. and Fraser, P. (2000) 'Forecasting Beta: How Well Does the 'Five-year Rule of Thumb' Do?', *Journal of Business Finance & Accounting*, Vol. 27, Nos. 7&8: pp. 953-82.

Grossman, S. and Stiglitz, J. (1980) 'On the Impossibility of Informationally Efficient Markets', *American Economic Review*, Vol. 70, No. 3, pp. 393-408.

Gruber, M. (1996) 'Another Puzzle: The Growth in Actively Managed Mutual Funds', *Journal of Finance*, Vol. 51, No. 3, pp. 783-810.

Grundy, K. and Malkiel, B. (1996) 'Reports of Beta's Death have been Greatly Exaggerated', *Journal of Portfolio Management*, Vol. 22, No. 3, pp. 36-43.

Hallahan, T. and Faff, R. (1999) 'An Examination of Australian Equity Funds for Selectivity and Timing Performance', *Journal of Multinational Financial Management*, Vol. 9, Nos. 3-4, pp. 387-402.

Haigh, M. and Hazleton, J. (2004) 'Financial Markets: A Tool for Social Responsibility?', *Journal of Business Ethics*, Vol. 52, No. 1, pp. 59-71.

Hanrahan, P. (1998) *Managed Investments Law*, Centre for Corporate Law and Securities Regulation/CCH Limited, North Ryde.

Haskell, P. (1990), 'The Prudent Person Rule for Trustee Investment and Modern Portfolio Theory', *North Carolina Law Review*, Vol. 69, No. 87, pp. 94-100.

Haugen, R. (2001) *Modern Investment Theory* (5th edn.), Prentice-Hall, New Jersey.

Haugen, R. (2004) *The New Finance* (3rd edn.), Pearson Prentice Hall, New Jersey.

Haugen, R. and Baker, N. (1990) 'Dedicated stock portfolios', *Journal of Portfolio Management*, Vol. 16, No. 4, pp. 17-22.

Hawawini, G. (1983) 'Why Beta Shifts as the Return Interval Changes', *Financial Analysts Journal*, Vol. 39, No. 3, pp. 73-7.

Hawley, J. and Williams, A. (1997) 'The Emergence of Fiduciary Capitalism', *Corporate Governance: An International Review*, Vol. 5, No. 4, pp. 206-13.

Heisler, J., Knittel, C., Neumann, J. and Stewart, S. (2004) Why Do Institutional Plan Sponsors Fire Their Investment Managers?, working paper No. 2004-16, School of Management, Boston University.

Hendricks, D. and Merton, R. (1981) 'On Timing and Investment Performance II: Statistical Procedures for Evaluating Forecasting Skills', *Journal of Business*, Vol. 54, No. 4, pp. 513-33.

Hendricks, D., Patel, K. and Zeckhauser, R. (1993) 'Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance, 1974-1988', *Journal of Finance*, Vol. 43, No. 1, pp. 93-130.

HM Treasury (2004) *Myners principles for institutional investment decision making: review of progress*, Her Majesty's Treasury, London.

Hirschman, A. (1970) *Exit, Voice and Loyalty*, Cambridge University Press, Cambridge.

Holderness, C. (2003) 'A survey of blockholders and corporate control', *Economic Policy Review - Federal Reserve Bank of New York*, Vol. 9, No. 1, pp. 51-63.

Holderness, C., Kroszner, R. and Sheehan, D. (1999) 'Were the Good Old Days That Good? Changes in Managerial Stock Ownership since the Great Depression', *Journal of Finance*, Vol. 55, No. 2, pp. 435-69.

Hopkins, N. (2005) 'Investors have a case against S&P: Murdoch', *The Australian*, 29 June, pp. 19.

Hutson, E. (2005), 'The early managed funds industry: investment trusts in 19th century Britain', *International Review of Financial Analysis*, Vol. 14, No. 4, pp. 439-54.

IBISWorld (2004), Industry Snapshots 2003-4, Investment Advice K7515 available at: <http://www.ibisworld.com.au/industry/retail.aspx?> (accessed online 15 May 2005).

Ibbotson, R., Kaplan, P. and Peterson, J. (1997) 'Estimates of Small-Stock Betas are Much Too Low', *Journal of Portfolio Management*, Vol. 22, No. 4, pp. 104-12.

IFSA (2000) *Guidance Note No. 18.00 Management Expense Ratio*, Investment and Financial Services Association, Sydney.

IFSA (2003) *Shareholder Activism Among Fund Managers: Policy and Practice*, Investment and Financial Services Association, Sydney.

IFSA (2004) *Corporate Governance: A Guide for Fund Managers and Corporations – Blue Book* (5th ed.), Investment and Financial Services Association, Sydney.

Ippolito, R. (1989) 'Efficiency with Costly Information: A Study of Mutual Fund Performance', *Quarterly Journal of Economics*, Vol. 104, No. 1, pp. 1-23.

IRESS (2005) *IRESS*, equity information system, IRESS Market Technology, Melbourne.

Jegadeesh, M. and Titman, S. (1993) 'Returns to Buying Winners and Selling Losers: Implications for Market Efficiency', *Journal of Finance*, Vol. 48, No. 1, pp. 65-91.

Jegadeesh, M. and Titman, S. (2001) 'Profitability of Momentum Strategies: An Evaluation of Alternative Explanations', *Journal of Finance*, Vol. 56, No. 2, pp. 699-718.

Jensen, M. (1968) 'The Performance of Mutual Funds in the Period 1945-1965', *Journal of Finance*, Vol. 23, No. 2, pp. 389-416.

Jensen, M. (1969) 'Risk, the pricing of capital assets, and the evaluation of investment portfolios', *Journal of Business*, Vol. 42, No. 2, pp. 167-247.

Jensen, M. (1972) 'The Foundations and Current State of Capital Market Theory' in *Studies in the Theory of Capital Markets* (Jensen, M. ed.), Praeger Publishing, New York.

Jensen, M. and Meckling, W. (1976) 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', *Journal of Financial Economics*, Vol. 3, No. 4, pp. 305-60.

Kahneman, D. and Tversky, A. (1973) 'On the Psychology of Prediction', *Psychological Review*, Vol. 80, pp. 237-51.

Kahneman, D. and Tversky, A. (1979) 'Prospect theory: An analysis of decision under risk', *Econometrica*, Vol. 47, No. 2, pp. 263-91.

Kahneman, D. and Tversky, A. (1982) 'Intuitive predictions: biases and corrective procedures', reprinted in Kahneman, D., Slovic, P. and Tversky, A. *Judgement under Uncertainty: Heuristics and Biases*, Cambridge University Press, Cambridge.

Karpoff, J. (1998) Does Shareholder Activism Work? A Survey of Empirical Findings, working paper, University of Washington.

Karpoff, J. Malatesta, P. and Walkling, R. (1996) 'Corporate Governance and Shareholder Initiatives: Empirical Evidence', *Journal of Financial Economics*, Vol. 42, No. 3, pp. 365-95.

Keim, D. (1985) 'Dividend Yields and Stock Returns: Implications of Abnormal January Returns', *Journal of Financial Economics*, Vol. 14, No. 3, pp. 473-89.

Keim, D. and Madhavan, A. (1998) 'The Cost of Institutional Equity Trades', *Financial Analysts Journal*, Vol. 54, No. 4, pp. 50-69.

Kendall, D. (1953) 'Stochastic Processes Occurring in the Theory of Queues and their Analysis by the Method of the Imbedded Markov Chain', *The Annals of Mathematical Statistics*, Vol. 24, No. 3, pp. 338-54.

Keynes, J. (1952) *Treatise on Probability* (3rd edn.), Macmillan, London.

Keynes, J. (1936) *The General Theory Of Employment, Interest And Money*, Macmillan, London.

Khorana, A. and Servaes, H. (1999) 'The Determinants of Mutual Fund Starts', *Review of Financial Studies*, Vol. 12, No. 5, pp. 1043-74.

Khorana, A. and Servaes, H. (2000) What Drives Market Share in the Mutual Fund Industry?, working paper, University of Virginia.

Khorana, A. and Servaes, H. (2004) Conflicts of Interest and Competition in the Mutual Fund Industry, SSRN working paper available online at <http://ssrn.com/abstract=240596>.

Khorana, A., Servaes, H. and Tufano, P. (2005) 'Explaining the size of the mutual fund industry around the world', *Journal of Financial Economics*, Vol. 78, No. 1, pp. 145-85.

Kindelberger, C. (1996) *Manias, Panics, and Crashes: A History of Financial Crises*, John Wiley & Sons, New York.

King, B. (1966) 'Market and Industry Factors in Stock Price Behaviour', *Journal of Business*, Vol. 39, No. 1, pp. 139-90.

Klarman, S. (1996) *Margin of Safety*, Harper Business, New York.

Klemkosky, R. and Martin, J. (1975) 'The Adjustment of Beta Forecasts', *Journal of Finance*, Vol. 30, No. 4, pp. 1123-8.

Koppes, R. and Reilly, M. (1995) 'An Ounce of Prevention: Meeting the Fiduciary Duty to Monitor an Index Fund Through Relationship Investing', *Journal of Corporation Law*, Vol. 20, No. 3, pp. 413-49.

KPMG (2004) *Early Reporting Trends: A survey of early reporting trends under the ASX Corporate Governance Council Guidelines*, KPMG, Sydney.

KPMG (2005) *Reporting against ASX Corporate Governance Council Guidelines*, KPMG, Sydney.

Kuhn, T. (1996) *The Structure of Scientific Revolutions* (3rd edn.), University of Chicago Press, Chicago.

Lakonishok, J., Shleifer, A., Vishny, R., Hart, O. and Perry, G. (1992) 'The structure and performance of the money management industry', *Brookings Papers on Economic Activity*, Vol. 1, pp. 339-91.

Lakonishok, J., Shleifer, A. and Vishny, R. (1994) 'Contrarian Investment, Extrapolation, and Risk', *Journal of Finance*, Vol. 49, No. 5, pp. 1541-78.

Lamb, R. and Northington, K. (2001) 'The Root of Reported Betas', *Journal of Investing*, Vol. 10, No. 3, pp. 50-3.

Langbein, J. and Posner, R. (1976) 'Market Funds and Trust Investment Law', *American Bar Foundation Research Journal*, Vol. 1, No. 1, pp. 1-34.

La Porta, R. (1996) 'Expectations and the Cross-Section of Stock Returns', *Journal of Finance*, Vol. 51, No. 5, pp. 1715-42.

La Porta, R., Lopez-de-Silanes, A., Shleifer, A. and Vishny, R. (1998) 'Law and finance', *Journal of Political Economy*, Vol. 106, No. 6, pp. 1113-55.

Lawrence, J. and Stapledon, G. (1999) Is Board Composition Important? A Study of Listed Australian Companies, working paper, Faculty of Law, University of Melbourne.

Lehmann, B. and Modest, D. (1987) 'Mutual Fund Performance Evaluation: A Comparison of Benchmarks and Benchmark Comparisons', *Journal of Finance*, Vol. 23, No. 2, pp. 233-65.

Leibowitz, M. (1986) *Total Portfolio Duration: A New Perspective on Asset Allocation*, research report, Bond Portfolio Analysis Group, Salomon Brothers Inc, New York.

Levy, H. and Post, T. (2005) *Investments*, Prentice Hall, New York.

Linden, P. and Matolcsy, Z. (2004) 'Corporate Governance Scoring Systems: What Do They Tell Us?', *Australian Accounting Review* Vol. 14, No. 1, pp. 9-16.

Lintner, J. (1965) 'The Valuation of Risk Assets and the Selection of Risky Investment in Stock Portfolios and Capital Budgets', *Review of Economics and Statistics*, Vol. 47, No. 1, pp. 13-37.

Lo, A. and MacKinlay, A. (1999) *A Non-Random Walk Down Wall Street*, Princeton University Press, Princeton.

Lofthouse, S. (2001) *Investment Management* (2nd edn.), John Wiley & Sons, Chichester.

Lynch, A. and Mendenhall, R. (1997) 'New Evidence on Stock Price Effects Associated with Changes in the S&P500 Index', *Journal of Business*, Vol. 70, No. 3, pp. 351-83.

McAdam, M. (2005) 'Putting a price on a founder's control', *Australian Financial Review*, 13 April, pp. 29.

MacNeil, I. and Li, X. (2005) "Comply or Explain": Market Discipline and Non-Compliance with the Combined Code, working paper, University of Glasgow.

Macquarie (2002) *Wealth Management Seminar*, presentation by Peter Maher delivered September, Macquarie Wealth Services Group, Macquarie Bank Limited, Sydney.

Macquarie (2006) *Macquarie Cash Management Trust - Product Disclosure Statement*, Macquarie Bank Limited, Sydney.

MacQueen, G. and Thorley, S. (1999) 'Mining Fool's Gold', *Financial Analysts Journal*, Vol. 55, No. 2, pp. 61-72.

Madhavan, A. (2000) 'Market microstructure – A Survey', *Journal of Financial Markets*, Vol. 3, No. 3, pp. 205-58.

Madhavan, A. (2002) 'Market Microstructure – A Practitioner's Guide', *Financial Analysts Journal*, Vol. 58, No. 5, pp. 28-44.

Madhavan, A. (2003) 'The Russell Reconstitution Effect', *Financial Analysts Journal*, Vol. 59, No. 4, pp. 51-64.

Madhavan, A. and Ming, K. (2003) 'The hidden costs of index rebalancing', *Journal of Investing*, Vol. 12, No. 3, pp. 29-35.

Mahoney, P. (2004) 'Manager-Investor Conflicts in Mutual Funds', *Journal of Economic Perspectives*, Vol. 18, No. 2, pp. 161-182.

Malkiel, B. (1973) *A Random Walk Down Wall Street*, Norton, New York.

Malkiel, B. (1995) 'Returns from investing in Equity Mutual Funds 1971 to 1991', *Journal of Finance*, Vol. 50, No. 2, pp. 549-72.

Malkiel, B. (1999) *A Random Walk Down Wall Street* (7th edn.), Norton, New York.

Malkiel, B. (2003) 'The efficient markets hypothesis and its critics', *Journal of Economic Perspectives*, Vol. 17, No.1, pp. 59-82.

Malkiel, B. and Radisich, A. (2001) 'The Growth of Index Funds and the Pricing of Equity Securities', *Journal of Portfolio Management*, Vol. 27, No. 2, pp. 9-21.

Malkiel, B. and Xu, Y. (1997) 'Risk and return revisited', *Journal of Portfolio Management*, Vol. 23, No. 3, pp. 9-14.

Malkiel, B. and Xu, Y. (2000) 'Idiosyncratic risk and security returns', working paper, Department of Economics, Princeton University.

Mamaysky, H. and Spiegel, M. (2001) 'A theory of mutual funds: Optimal fund objectives and industry organization', Yale ICF Working Paper 00-50, Yale University.

Mandelbrot, B. (1966) 'Forecasts of future prices, unbiased markets and "martingale" models', *Journal of Business*, Vol. 39, No. 1, pp. 242-55.

Markowitz, H. (1952) 'Portfolio Selection', *Journal of Finance*, Vol. 7, No. 1, pp. 77-91.

Markowitz, H. (1959) *Portfolio Selection: Efficient Diversification of Investments*, John Wiley & Sons, New York.

Markowitz, H. (1991) *Portfolio Selection: Efficient Diversification of Investments* (2nd edn.), Blackwell, Cambridge.

Marsh, T. and Merton, R. (1986) 'Dividend variability and variance bounds tests for the rationality of stock prices', *American Economic Review*, Vol. 76, No. 3, pp. 483-98.

Massa, M. (1998) Why So Many Mutual Funds? Mutual Fund Families, Market Segmentation and Financial Performance, SSRN working paper available at: <http://ssrn.com/abstract=239851>

Massa, M. (2003) 'How Do Family Strategies Affect Fund Performance? When Performance-Maximization Is Not the Only Game In Town', *Journal of Financial Economics*, Vol. 67, No. 2, pp. 249-304.

Mayer, J. (1933) 'Pseudo-Scientific Method in Economics', *Econometrica*, Vol. 1, No. 4, pp. 418-28.

Mayers, D. (1972) 'Non-Marketable Assets and Capital Market Equilibrium Under Uncertainty', in *Studies in the Theory of Capital Markets* (Jensen, M. ed.), Praeger Publishing, New York.

McConnell, J. and Servaes, H. (1990) 'Additional Evidence on Equity Ownership and Corporate Value', *Journal of Financial Economics*, Vol. 27, No. 2, pp. 595-612.

Mees, B., Wehner, M. and Hanrahan, P. (2005) *Fifty Years of Managed Funds in Australia – Preliminary Research Report*, IFSA, Sydney, available online at www.ifsa.com.au.

Merton, R. (1990) 'The financial system and economic performance', *Journal of Financial Services Research*, Vol. 4, No. 4, pp. 263-300.

Miller, M. (1986) 'Financial innovation: The last twenty years and the next', *Journal of Financial and Quantitative Analysis*, Vol. 21, No. 4, pp. 459-71.

Miller, M. and Scholes, M. (1972) 'Rate of Return in Relation to Risk: A Re-examination of Some Recent Findings', in *Studies in the Theory of Capital Markets* (Jensen, M. ed.), Praeger Publishing, New York.

Minor, D. (2001) 'Beware of Index Fund Fundamentalists', *Journal of Portfolio Management*, Vol. 27, No. 4, pp. 45-51.

MLC Implemented Consulting (2004) *Conflicts of interest and misaligned incentives*, MLC Investments, Sydney.

Money Management (2004) Top 100 Dealer Groups, *Money Management*, Vol. 18, No. 2, pp. 15.

Monks, R. and Minow, N. (1996) *Watching the Watchers: Corporate Governance for the 21st Century*, Blackwell, Oxford.

Morck, R., Shleifer A. and Vishny, R. (1988) 'Management ownership and market valuation: An empirical analysis', *Journal of Financial Economics*, Vol. 20, pp. 293-315.

Mossin, J. (1966) 'Equilibrium in a Capital Asset Market', *Econometrica*, Vol. 34, No. 4, pp. 768-83.

MSCI (2001), *MSCI Enhanced Index Methodology*, Morgan Stanley Capital International, Geneva.

Myners, P. (2001) *Institutional Investment in the United Kingdom: A Review*, Her Majesty's Treasury, London.

Nosfinger, J. and Sais, R. (1999) 'Herding and Feedback Trading by Institutional and Individual Investors', *Journal of Finance*, Vol. 54, No. 6, pp. 2263-95.

Odean, T. (1998) 'Are Investors Reluctant to Realize Their Losses', *Journal of Finance*, Vol. 53, No. 5, pp. 1775-98.

Oldfield, S. and Clegg, B. (2001) 'BHP Investors Are Still Equivocal', *Australian Financial Review*, 15 May, pp. 13.

Parloff, R. (2004) 'Pension Politics', *Fortune*, Vol. 150, No. 13, pp. 27-30.

Parwada, J. and Faff, R. (2005) 'Pension Plan Investment Mandates: An Empirical Analysis of Manager Selection', *Journal of Financial Services Research*, Vol. 27, No. 1, pp. 77-98.

Perpetual (2006) *Perpetual Fund Profile: Industrial Share Fund*, August, Perpetual Investments, Sydney, available online at www.perpetual.com.au (accessed 15 December 2006).

Phillips, W. (1997) 'Chasing Down the Devil: Standards of Prudent Investment Under the Restatement (Third) of Trusts', *Washington and Lee Law Review*, Vol. 54, No. 1, pp. 335-85.

Pinnuck, M. (2003) 'An Examination of the Performance of the Trades and Stock Holdings of Fund Managers: Further Evidence', *Journal of Financial and Quantitative Analysis*, Vol. 38, No. 4, pp. 811-28.

Porter, M. (1997) 'Capital choices: Changing the way America invests in industry' in Chew, D (ed.) *Studies in International Corporate Finance and Governance Systems: A Comparison of the US, Japan, and Europe*, Oxford University Press, New York.

Poterba, J. (1998) Population Age Structure and Asset Returns: An Empirical Investigation, working paper 6774, National Bureau of Economics.

Poterba, J. (2001) 'Demographic Structure and Asset Returns', *Review of Economics and Statistics*, Vol. 83, No. 4, pp. 565-84.

Poterba, J. (2004) The Impact of Population Ageing on Financial Markets, working paper 10851, National Bureau of Economics.

Pozen, R. (2002) *The Mutual Fund Business* (2nd edn.), Houghton Mifflin, Boston.

PricewaterhouseCoopers (2006) *Australian Investment Management Survey 2006*, PricewaterhouseCoopers, Sydney.

Rainmaker (2004a) *Mandate Pipeline Analysis – Superannuation mandates 2003-04*, Rainmaker Information, Sydney.

Rainmaker (2004b) *Distribution Platforms Report*, Rainmaker Information, Sydney.

Rainmaker (2006a) *Investment Consulting Market Report*, Rainmaker Information, Sydney.

Rainmaker (2006b) *Rainmaker Workstation* database, Rainmaker Information, Sydney.

Rajan, A. and Ledster, D. (2004) *Raising the performance bar: challenges facing global investment management in the 2000s*, KPMG/Create, London.

RBA (2003) 'Australian Funds Management: Market Structure and Fees', *Reserve Bank of Australia Bulletin* (February), Reserve Bank of Australia, Sydney.

RBA (2006), *Reserve Bank of Australia Bulletin*, Reserve Bank of Australia, statistical tables available online at <http://www.rba.gov.au/Statistics/Bulletin/index.html> (accessed 12 September 2006).

Reilly, F. and Wright, D. (1988) 'A Comparison of Published Betas', *Journal of Portfolio Management*, Vol. 14, No. 3, pp. 64-9.

Revell, J. (2002) 'Retirement guide 2002: Are your savings safe? The seamy side of pension funds', *Fortune*, Vol. 146, No. 3, pp. 105-7.

Riley, B. (2001) 'Risks of Indexation' in *Indexation & Investment*, European Asset Management Association, London.

Roberts, M. (2002) 'Self Managed Superannuation Funds - Overview' in *Superannuation and Retirement Incomes - Back to the Future: Proceedings of Tenth Annual Colloquium of Superannuation Researchers*, University of New South Wales, Sydney.

Robson, G. (1986) 'The Investment Performance of Unit Trusts and Mutual Funds in Australia for the Period 1969 to 1978', *Accounting & Finance*, Vol. 26, No. 2, pp. 55-79.

Roll, R. (1977) 'A Critique of the Asset Pricing Theory's Tests; Part 1: On Past and Potential Testability of the Theory', *Journal of Financial Economics*, Vol. 4, No. 2, pp. 129-76.

Roll, R. (1978) 'Ambiguity When Performance Is Measured by the Security Market Line', *Journal of Finance*, Vol. 33, No. 4, pp. 1051-69.

Roll, R. (1979) 'Testing a Portfolio for Ex Ante/Variance Efficiency', in *Portfolio Theory, 25 Years After, Studies in Management Sciences* (Elton, E., and Gruber, M. eds.), North-Holland Publishing Co., New York.

Roll, R. and Ross, S. (1980) 'An Empirical Investigation of the Arbitrage Pricing Theory', *Journal of Finance*, Vol. 35, No. 5, pp. 1073-103.

Rosenberg, B. (1974) 'Extra-market components of covariance amongst security prices', *Journal of Financial and Quantitative Analysis*, Vol. 9, No. 2, pp. 263-74.

Rosenberg, B. (1977) 'Institutional Investment with Multiple Portfolio Managers' in *Proceedings of the Seminar on the Analysis of Security Prices*, University of Chicago, pp. 55-160.

Rosenberg, B. (1985) 'Prediction of Common Stock Betas', *Journal of Portfolio Management*, Vol. 11, No. 2, pp. 5-14.

Rosenberg, B. and Guy, G. (1976) 'Prediction of Beta from Investment Fundamentals', *Financial Analysts Journal*, Vol. 32, No. 3, pp. 60-72.

Ross, S. (1973) 'The economic theory of agency: the principal's problem', *American Economic Review*, Vol. 63, No. 2, pp. 134-9.

Ross, S. (1976) 'The Arbitrage Pricing Theory of Capital Asset Pricing', *Journal of Economic Theory*, Vol. 13, No. 3, pp. 341-60.

Ross, S. (1989) 'Institutional Markets, Financial Marketing, and Financial Innovation', *Journal of Finance*, Vol. 44, No. 3, pp. 541-56.

Rouwenhorst, K. (2004) The Origins of Mutual Funds, working paper 04-48, International Center for Finance, Yale University.

Rubinstein, M. (2001) 'Rational Markets: yes or no? The affirmative case', *Financial Analysts Journal*, Vol. 57, No. 3, pp. 15-29.

Rudd, A. and Rosenberg, B. (1979) 'Realistic Portfolio Optimisation' in *Portfolio Theory, 25 Years After, Studies in Management Sciences* (Elton, E., and Gruber, M. eds.), North-Holland Publishing Co., New York.

Ryan, R. (1999) 'Liabilities: The True Objective', *Journal of Investing*, Vol. 8, No. 4, pp. 31-7.

Samuelson, P. (1965) 'Proof that Properly Anticipated Prices Fluctuate Randomly', *Industrial Management Review*, Vol. 6, No. 1, pp. 41-49.

Samuelson, P. (1974) 'Challenge to Judgement', *Journal of Portfolio Management*, Vol. 1, No. 1, pp. 17-9.

Samuelson, P. (1989) 'The judgement of economic science on rational portfolio management: Indexing, timing, and long horizon effects' *Journal of Portfolio Management*, Vol. 16, No. 1, pp. 4-12.

Sawicki, J. (2000) 'Investors' Response to the Performance of Professional Fund Managers: Evidence from the Australian Wholesale Funds Market', *Australian Journal of Management*, Vol. 25, No. 1, pp. 47-66.

Sawicki, J. and Ong, F. (2000) 'Evaluating Managed Fund Performance Using Conditional Measures: Australian Evidence', *Pacific-Basin Finance Journal*, Vol. 8, Nos. 3-4, pp. 505-28.

Scharfstein, D. and Stein, J. (1990) 'Herd Behaviour and Investment', *American Economic Review*, Vol. 80, No. 3, pp. 465-79.

Schieber, S. and Shoven, J. (1994) The Consequences of Population Aging on Private Pension Fund Saving and Asset Markets, working paper 4665, National Bureau of Economic Research, Cambridge.

Scholes, M. and Williams, J. (1977) 'Estimating Betas from Non-Synchronous Data', *Journal of Financial Economics*, Vol 5, No. 3, pp. 309-327.

SEC (2005a) Staff Report Concerning Examinations of Select Pension Consultants, Securities and Exchange Commission, Washington.

SEC (2005b) *SEC Releases Staff Report Describing Findings from Examinations of Select Pension Consultants*, media release, Securities and Exchange Commission, 16 May, Washington.

Sharpe, W. (1963) 'A Simplified Model for Portfolio Analysis', *Management Science*, Vol. 9, No. 2, pp. 277-93.

Sharpe, W. (1964) 'Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk', *Journal of Finance*, Vol. 19, No. 3, pp. 425-42.

Sharpe, W. (1966) 'Mutual Fund Performance', *Journal of Business*, Vol. 39, No. 1, pp. 119-38.

Sharpe, W. (1970) *Portfolio theory and capital markets*, McGraw-Hill, New York.

Sharpe, W. (1981) 'Decentralized Investment Management', *Journal of Finance*, Vol. 36, No. 2, pp. 217-34.

Sharpe, W. (1991) 'The arithmetic of active management', *Financial Analysts Journal*, Vol. 47, No. 1, pp. 7-10.

Sharpe, W. (1992) 'Asset Allocation: Management Style and Performance Measurement', *Journal of Portfolio Management*, Vol. 18, No. 2, pp. 7-19.

Sharpe, W. (2002) 'Budgeting and Monitoring Pension Fund Risk', *Financial Analysts Journal*, Vol. 58, No. 5, pp. 74-86.

Sharpe, W. and Tint, L. (1990) 'Liabilities – A New Approach', *Journal of Portfolio Management*, Vol. 16, No. 2, pp. 5-10.

Shefrin, H. and Statman, M. (1985) 'The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence', *Journal of Finance*, Vol. 40, No 3, pp. 777-92.

Shefrin, H. and Statman, M. (2000) 'Behavioral Portfolio Theory', *Journal of Financial and Quantitative Analysis*, Vol. 35, No. 2, pp. 127-51.

Shiller, R. (1981) 'Do stock prices move too much to be justified by subsequent changes in dividends?', *American Economic Review*, Vol. 71, No. 3, pp. 421-36.

Shiller, R. (1987) 'The Volatility of Stock Market Prices', *Science*, Vol. 235, No. 1, pp. 33-7.

Shiller, R. (1990) 'Market Volatility and Investor Behaviour', *American Economic Review*, Vol. 80, No. 2, pp. 58-62.

Shiller, R. (2002) 'Bubbles, Human Judgment, and Expert Opinion', *Financial Analysts Journal*, Vol. 58, No. 3, pp. 18-26.

Shiller, R. (2003) 'From Efficient Markets Theory to Behavioural Finance', *Journal of Economic Perspectives*, Vol. 17, No. 1, pp. 83-104.

Shiller, R. (2005) 'Behavioural Economics and Institutional Innovation', *Southern Economic Journal*, Vol. 72 No. 2, pp. 269-83.

Shleifer, A. (1986) 'Do Demand Curves for Stocks Slope Down?', *Journal of Finance*, Vol. 41, No. 3, pp. 579-90.

Shleifer, A. (2000) *Inefficient Markets: An Introduction to Behavioural Finance*, Oxford University Press, Oxford.

Shleifer, A. and Vishny, R. (1990) 'Equilibrium Short Horizons of Investors and Firms', *American Economic Review*, Vol. 80, No. 2, pp. 148-53.

Shleifer, A. and Vishny, R. (1997) 'The Limits of Arbitrage', *Journal of Finance*, Vol. 53, No. 1, pp. 35-55.

Short, H. and Keasey, K. (1997) 'Institutional shareholders and corporate governance in the United Kingdom' in Keasey, K., Thomson, S. and Wright, M. (eds.) *Corporate Governance: Economic, Management and Financial Issues*, Oxford University Press, Oxford.

Siegel, L., Kroner, K. and Clifford, S. (2001) 'The Greatest Return Stories Ever Told', *Journal of Investing*, Vol. 10, No. 2, pp. 91-101.

Simon, H. (1978) 'Rationality as Process and as Product of Thought', *American Economic Review*, Vol. 68, No. 2, pp. 1-16.

Sinclair, N. (1990) 'Market Timing Ability of Pooled Superannuation Funds January 1981 to December 1987', *Accounting & Finance*, Vol. 30, No. 1, pp. 511-65.

Sinquefeld, R. (1991) 'Are Small-Stock Returns Achievable?', *Financial Analysts Journal*, Vol. 47, No. 1, pp. 45-50.

Sirri, E. and Tufano, P. (1998) 'Costly Search and Mutual Fund Flows', *Journal of Finance*, Vol. 53, No. 5, pp. 1589-1622.

Song, W. and Szewczyk, S. (2003) 'Does Coordinated Institutional Investor Activism Reverse the Fortunes of Underperforming Firms?', *Journal of Financial and Quantitative Analysis*, Vol. 38, No. 2, pp. 317-36.

Soros, G. (1987) *The Alchemy of Finance*, Simon and Schuster, New York.

Standard & Poor's (2003) *Re-thinking Float Adjustments in the Context of U.S. Indexes*, Standard & Poor's Indexes, New York.

Standard & Poor's (2004a) *Float Adjustment*, Standard & Poor's Indexes, New York.

Standard & Poor's (2004b) *Understanding Indices*, Standard & Poor's Indexes, Sydney.

Standard & Poor's (2005) *Standard & Poor's Indexes Versus Active Funds Scorecard - Fourth Quarter 2005*, Standard & Poor's, New York.

Standard & Poor's (2006a), *S&P Market Share Commentary - Findings for June 30, 2006*, Standard & Poor's Australia, Sydney.

Standard & Poor's (2006b) email communication from Mr Greg Hyland, Standard & Poor's Australia, Sydney, July 28.

Standard & Poor's (2006c) *Annual Survey of S&P Indexed Assets - 31 December 2005*, Standard & Poor's, New York.

Statman, M. (1981) 'Betas compared: Merrill Lynch vs. Value Line', *Journal of Portfolio Management*, Vol. 7, No. 2, pp. 41-4.

Statman, M. (1987) 'How Many Stocks Make a Diversified Portfolio?', *Journal of Financial and Quantitative Analysis*, Vol. 22, No. 3, pp. 353-63.

Statman, M. (2002) 'Lottery players/Stock traders', *Financial Analysts Journal*, Vol. 58, No. 1, pp. 14-21.

Stout, L. (2005) *Inefficient Markets and the New Finance*, working paper 05-11, School of Law, University of California, Los Angeles.

Suppe, F. (1977) *The Structure of Scientific Revolutions* (2nd edn.), University of Illinois Press, Urbana.

Taleb, N. (2001) *Fooled by Randomness*, Texere, New York.

Toporowski, J. (2000) *The End of Finance: Capital Market Inflation, Financial Derivatives and Pension Fund Capitalism*, Routledge, London.

Treynor, J. (1965) 'How to Rate Management of Investment Funds', *Harvard Business Review*, Vol. 43, No. 1, pp. 63-75.

Treynor, J. and Muzay, K. (1966) 'Can Mutual Funds Outguess the Market?', *Harvard Business Review*, Vol. 43, pp. 131-36.

Troutman, M. (1991) 'The Steinbrenner Syndrome and the Challenge of Manager Selection', *Financial Analysts Journal*, Vol. 47, No. 2, pp. 37-45.

Tufano, P. (1988) *Financial innovation and first-mover advantages: An empirical analysis*, PhD thesis, Harvard University.

Tufano, P. (1989) 'Financial innovation and first-mover advantages', *Journal of Financial Economics*, Vol. 25, No. 2, pp. 213-40.

UBS (2007) Australian Equity Supply/Demand Outlook: "Weight of Money" to Get Weightier, Investment Research, UBS Securities, Sydney.

Vasicek, O. (1973) 'A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas', *Journal of Finance*, Vol. 28, No. 5, pp. 1233-9.

Vafaes, N. and Theodorou, E. (1998) 'The association between board structure and firm performance in the UK', *British Accounting Review*, Vol. 30, No. 4, pp. 383-407.

Vespro, C. (2006) 'Stock Price and Volume Effects Associated with Compositional Changes in European Stock Indexes', *European Financial Management*, Vol. 12, No. 1, pp. 103-27.

Von Neumann, J. and Morgenstern, O. (1953) *Theory of games and economic behavior* (3rd edn.), Princeton University Press, Princeton.

Wahal, S. (1996) 'Pension Fund Activism and Firm Performance', *Journal of Financial Economics*, Vol. 31, No. 1, pp. 1-23.

Weinberg, A. (2003) 'CalPERS Takes on Wall Street', *Forbes.com*, 16 December available at http://www.forbes.com/2003/12/16/cx_aw_1216calpers.html

Wermers, R. (2000) 'Mutual Fund Performance: An Empirical Decomposition into Stock-picking Talent, Style, Transactions Costs, and Expenses', *Journal of Finance*, Vol. 55, No. 4, pp. 1655-95.

Williams, J. (1938) *The Theory of Investment Value*, Harvard University Press, Cambridge.

Wilmot, B. (2003) 'Fears voiced as asset consultants gain ground', *The Australian Financial Review*, 28 May, pp. 31.

Wood, J. (1991) 'A cross sectional regression test of the mean-variance efficiency of an Australian value-weighted market portfolio', *Accounting and Finance*, Vol. 1, No. 1, pp. 96-109.

Woolley, P. and Bird, R. (2003) 'Economic implications of passive investing', *Journal of Asset Management*, Vol. 3, No. 4, pp. 303-12.

Working, H. (1934) 'A Random-Difference Series for Use in the Analysis of Time Series', *Journal of the American Statistical Association*, Vol. 29, No. 185, pp. 11-24.

Xu, Y. and Malkiel, B. (2003) 'Investigating the Behavior of Idiosyncratic Volatility', *Journal of Business*, Vol. 76, No. 4, pp. 613-44.

Yermack, D. (1996) 'Higher market valuation of companies with a small board of directors', *Journal of Financial Economics*, Vol. 40, No. 2, pp. 185-211.

Zamansky, J. (2003) Can "Conflicted" State Treasurers Who Control State Employee Pension Funds Lead Corporate Governance Reform at the NYSE and in the Mutual Fund Industry?, address to the World President's Organization, November 10, New York.