# An empirical research into the metacapitalism efficiency in the Australian Telecommunications Industry

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# An Empirical Research into the MetaCapitalism Efficiency in the Australian Telecommunications Industry

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Geyi Xu
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# THESIS CERTIFICATION

I, Geyi Xu, declare that this thesis, submitted in fulfilment of the requirements for the award of master by research, in the School of Accounting and Finance, 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.

Geyi Xu

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# ABSTRACT

MetaCapitalism is publicly introduced by the consulting firm PriceWaterhouseCoopers (PwC) in 2000 as a methodology that assists firms in becoming more efficient by means of decapitalisation, downsizing and innovation in value-added communities. However, can MetaCapitalism contribute to our understanding of market performance, especially in view of the current credit crisis? Hence, the Australian telecommunications sector is chosen for a primary test regarding the effects of MetaCapitalism on company's market performance. The relevant data is collected from 1989 to 2007. MetaCapitalism strategy is measured by six indices as the change of total assets (TA), property, plant and equipment (PP&E), net working capital (NWC) the percentage of PP&E/TA, NWC/TA and (PP&E+NWC)/TA from one period to the next. Share price is adopted as the market performance indicator underlining the efficient market paradigm.

The key findings show that the Australian telecom companies have been following the strategy since 1989 especially notable is that there are large scale decapitalisations during the year 2000. All six MetaCapitalism indices demonstrate frequent fluctuations during the 18-year period. Key conclusions are that even though decreasing PP&E at certain level may have a positive impact on market performance especially for large scale companies, TA and NWC are of vital importance to telecom companies. Another important finding is that the empirical result proves the reflexivity of the stock market, where its cognitive function and manipulative function demonstrate different perceptions of the MetaCapitalism efficiency changes. In conclusion, the empirical results revealed strong evidence against the MetaCaptalism assumptions proposed by PwC.

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# TABLE OF ABBREVIATIONS

| | |
|---|---|
| ASX | Australian Stock Exchange Limited |
| B2B | Business-to-Business |
| CAPEX | Capital Expenditure |
| CCR | Traditional Radial DEA |
| CRS | Constant Returns to Scale |
| DEA | Data Envelopment Analysis |
| DMUs | Decision-making Units |
| EBIT | Earnings before interest and taxes |
| EBITDA | Earning before interest, taxes, depreciation and amortization |
| EMH | Market Efficient Hypothesis |
| IPO | Initial Public Offering |
| mCRC | MetaCapitalism research centre |
| DEA | Data Envelopment Analysis |
| NWC | Net Working Capital |
| NoE | Number of Employees |
| O/O | Outsourcing and Off-shoring |
| PP& E | Property Plants & Equipment |
| PwC | PricewaterhouseCoopers |
| ROA | Return on Assets |
| ROI | EBIT over Total Asset |
| R&D | Research & Development |
| TA | Total Asset |
| VAC | Value Added Communities |
| VRS | Variable Returns to Scale |

# CHAPTER ONE

INTRODUCTION

## *1.1 MetaCapitalism*

It would be appropriate to start with the following quote by Means & Schneider (2000) who were influential and innovative global strategists working for the prestigious consulting firm – PricewaterhouseCoopers (PwC) during the year 2000.

> 'The opportunities for companies with the financial means and human and intellectual capital are manifest. The key is to know how to *leverage those total assets* in time to ride the wave into the *e-business future*'.

The notion of MetaCapitalism with the key features of leveraging assets and e-business was first introduced by Grady Means and David Schneider in 2000. MetaCapitalism, literally means "beyond capitalism" which may be described as 'massive business and economic transformation' brought by new information technology such as the internet and mobile technology. Moreover, under global forces such as market globalisation, capital integration, and process simplicity, the traditional business model of Capitalism which draws heavily on physical and working capital will be transformed into a 'business-to-business (B2B) e-business model of MetaCapitalism' (Means and Schneider, 2000: 42). Compared to the traditional model (see figure 1.1) this innovative B2B model is characterised by an inverse pyramid where global economic markets and companies are stimulated with more enthusiasm for a revolutionary change which promises 'untold riches' and wealth at an accumulated speed.

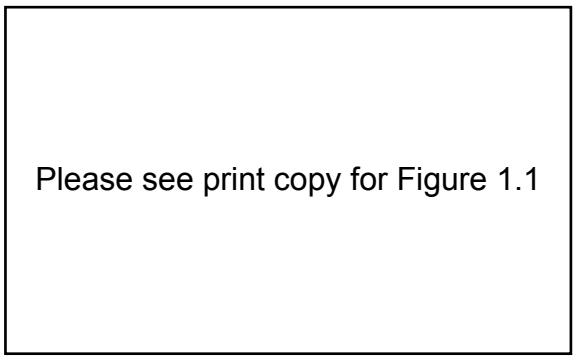



Figure 1.1: MetaCapitalism business model
Source: Mean & Schneider (2000: 6)

As declared by Means and Schneider (2000), the idea of an e-business revolution was sprung out during their interviews with executive officers worldwide after they had produced another book called "Wisdom of the CEO". Means and Schneider were encouraged to learn that the CEO's were prepared for this revolution because they believed 'change' was imperative in order to survive in a competitive market; companies must either adopt or perish. The e-business model shown in Fig 1.1 represents a 'decapitalised, brand-owning enterprise with relatively modest physical and working capital'. This transformation is focused on customer satisfaction and brand loyalty via outsourcing all non-core physical activities and support functions. A significant part or perhaps all of the supply chain may be outsourced, generally into incremental parts. This cluster of brand-owning companies in external or outsourced networks is a critical tenet of the B2B e-business model known as a *value-added community* (VAC)[1]. MetaMarket is created by the dynamic relationships within contiguous VACs.

The other three tenets of MetaCapitalism are downsizing, decapitalisation, and innovation. In contrast to layoff, downsizing means reducing the number of operating

[1] Value-added community may be thought of as networks external to the brand-owning companies. The issues include supply chain, shared service and related outsourced processes (Means & Schneider, 2000).

employees which results in a permanent downscaling while decapitalisation means dispensing with the physical assets. Downsizing and decapitalisation can be achieved by means of an outsourced network (see figure1.1) where a company delegates its non-core functions and services to a third party through which, the human capital and physical assets can be leveraged. On the other hand this new e-business model requires that companies largely invest in research and development (R&D) in order to maintain an innovative edge.

## *1.2 MetaCapitalism and Efficiency*

The Concise Oxford English Dictionary defines the word “efficient” as “productive of effort” and the word “efficiency” as “the ratio of useful work performed to the total energy expended”. To clarify further, this definition includes “doing things right” i.e., putting things in the right location. In terms of a company, economic efficiency means the best allocation of scarce resources (inputs) in order to produce the highest profitability (outputs). Put it in another way, higher efficiency means being more competitive and profitable in enterprise operations (Tsai, et. al., 2006). Since profitability is the objective of every commercial activity, absolute efficiency is vitally important for corporate survival.

However, evaluating efficiency and the level sought is not as easy as providing a definition. The best allocation of resources or the highest profitability is based on comparisons rather than a universal formula, while at different times and with different technology there may generate diverse levels of efficiency. When steam powered ships

and railways (in the first and second industrial revolutions) were developed during the 19th century people believed that by replacing men with machines they had found a more efficient way. This era ended in 1974 when information technology was invented which indicated the beginning of the third industrial revolution (Greenwood, 1997). Just as the first and second industrial revolutions ushered in a rapid development of capitalism, information technology is believed to have generated MetaCapitalism.

An undeniable expectation of adopting MetaCapitalism is to generate efficiency gains that are obviously above the level of replacing manpower with an assembly line. Means and Schneider (2000) asserted in their book that the decapitalised nature of a brand-owning company allows it to change direction quickly, not only into new markets but also into new sectors, creating entirely new options in the marketplace. Adopting strategies of aggressive decapitalisations facilitate higher levels of cash flow such that the value of the worldwide capital market was predicted to explode. Given that the MetaMarket was correct, from the full unleashing of MetaCapitalism, the creation of economic wealth was forecasted to increase tenfold in 10 years from $20 trillion to $200 trillion by 2009[2]. Furthermore, the Dow Jones would surpass 30,000 or 100,000 points by 2009[3] . With such acceleration in growth, MetaCapitalism would dramatically change the most basic assumptions of public finance and economic well-being worldwide.

The idea of MetaCapitalism seemed to be an omnipotent solution for economic efficiency. Accepting MetaCapitalism was not an “alternative”, it should be a “must”. It has become an essential ingredient for every industrial sector. The 2008 report on

[2] Derived from Means and Schneider, 2000, pg.132
[3] Derived from Means and Schneider, 2000, pg.141

outsourcing and off-shoring (O/O model) from the consulting firm Delloite (Delloite website, 2008) disclosed that a growing number of companies depend on other parties not only the 'non-core functions' but also for 'core business processes'. According to Delloite's "offshoring report (2007)", "off-shoring" means relocating one or more business processes or functions to a different (and usually lower cost) foreign location. This new trend provides further evidence to show how MetaCapitalism has evolved in less than a decade. Companies were no longer bound to just outsourcing non-core functions or processes, they had expanded to off-shoring core value-added activities. Global financial services offshoring report (2007) also mentioned that off-shoring can reduce labour and operating costs and also bring about other 'advantages'. Certainly these are efficiency related advantages in the domestic economy where a company runs on higher costs both in human and physical capital.

### *1.3 Critique of MetaCapitalism Efficiency*

The MetaCapitalism strategy aroused extensive concerns from professionals and academics. The MetaCapitalism research centre (mCRC) [4] at the University of Wollongong evaluates the role of efficiency changes to capital, technology, and labour in the private and public sectors, and their overall impact on global financial markets. Research by Mickhail & Pirrello (2005), unlike PwC's prediction, showed that the economy was not flourishing during MetaCapitalism's transformation, even in the short term. Share prices plummeted in firms such as Cisco and Dell who had adopted the MetaCapitalism strategy. From 2000 to 2002 Cisco's share price dropped from $70 to

[4] MetaCapitalism research center was established by George Mickhail in Paris in 2001.

$20 and Dell from $60 to $25, respectively. Of more concern, Lehman Brothers experienced a 19.4% downturn in PP&E/TA, and the cumulative change in NWC/TA, another index of MetaCapitalism, decreased by 8,364%[5] from 1998 to 2005. In 2006, after only a few years, Cisco was overtaken by HP, while the share of Dell sunk to an historical low in seven years, according to the latest news (Times online). And Lehman Brothers went into bankruptcy in September 2008. It is uncertain whether the MetaCapitalism strategy has contributed toward these companies' failures.

Moreover the Dow Jones peaked at 13,482.35 points in 2007 but with a continued deterioration of near-term global economic conditions swept from US mortgage securities, it is difficult to believe it will reach the expected 30,000 points in a year, given that there is no other "visible or invisible hand"[6], not to mention 100,000 points. By the same token the promised $200 trillion of world wide wealth is an ironic myth.

There appeared to be an enormous gulf between the predictions of the consulting firm and reality, therefore it was arguable whether MetaCapitalism was the 'future of industry or the bane of our existence' (Mickhail et al., 2002). MetaCapitalism is not a novel concept – outsourcing and off-shoring in the quest for efficiency have been implemented globally by corporations before MetaCapitalism was publicly announced in 2000. In a decade it appeared to become the dominant principle for corporate survival. This new Darwinism was then critiqued as 'the salvationary promise' that 'at first glance appears perfect, even flawless. Indeed the promise of financial salvation seems

[5] PP&E/TA and NWC/TA are two important MetaCapitalism indices adopted by Mickhail & Pirrello (2005). The decrease in PP&E/TA and NWC/TA are important signals that MetaCapitalism strategy is followed by the company. PP&E/TA means property, plant & equity over total asset. NWC/TA means networking capital over total asset.

[6] In economics, the **invisible hand** is the term economists use to describe the self-regulating nature of the marketplace. The **invisible hand** is a metaphor coined by the economist Adam Smith.

irresistible, seductive, and all but guaranteed'. Mickhail doubted that the idea of MetaCapitalism 'simply minimised safety margins for operations to assist in *ultra efficiency* gains' (Mickhail et al., 2002).

In view of the different opinions held of MetaCapitalism by the consulting firm and the researchers which I studied, a research question begs an answer and that is the heart of this paper then is: Does the relentless pursuit of efficiency subsequently create and maximise wealth (or happiness) as assumed by economists in the real market? Or, as the critiques state, are consulting firms actually misleading corporations into a dangerous territory by making another economic bubble? Without mentioning the ethical issues or its socio-political impact on the global community, how MetaCapitalism efficiency contributes to the long term profitability of corporations is still questionable. This therefore is the motivation for this empirical research.

In an attempt to answer these questions, the Australian telecommunications industry was chosen for preliminary empirical research. An examination of any causal relationship between the level of MetaCapitalism efficiency and the performance of a sample industry will give an insight into MetaCapitalism and its presumed blueprint. In this research MetaCapitalism efficiency is reduced to six measurable indices: PP&E (plant, property and equipment), NWC (net working capital), TA (total asset), NWC/TA (the percentage of NWC over TA), PP&E/TA (the percentage of PP&E of TA) and (PP&E+NWC)/TA (the percentage of the sum of PP&E and NWC over TA). The market performance of the company is evaluated by its share price on the stock market, and test period is from 1989 to 2007, which are expected to provide a long term picture.

The thesis is divided into six Chapters. Chapter 2 is the literature review. Chapter 3 is about theory, methodology, and data collection. Chapter 4 is the empirical analysis which mainly focuses on the analysis by using average data to obtain a horizontal picture of the MetaCapitalism status in Australian telecom industry during each year, and the corresponding market performance of the company with similar MetaCapitalism level. Moreover, in order to depict how MetaCpaitalism has progressively evolved to a revolutionary change in the Australian telecom industry, it also utilizes the cumulative data of the whole industry during the 18-year period to obtain a vertical picture. Chapter 5 is a critique of MetaCapitalism efficiency adoption and chapter 6 comes to the conclusion and research limitations.

# CHAPTER TWO

LITERATURE REVIEW

Based on the previous discussions, there are mainly three areas covered in the literature review. Firstly, how significant “efficiency” is in regards to the telecommunications industry. Secondly, how “efficiency” was evaluated in the telecom industry traditionally is to be reviewed. Thirdly, how MetaCapitalism “efficiency” was evaluated by the previous studies will be introduced.

## *2.1 How does efficiency matter to the telecom industry?*

The telecommunications industry was chosen because of its significance in the new globalized economy. Telecom industry encountered fierce competition as well as challenges from the bursting dotcom bubble, the high license prices for 3G auctions and from rapid overseas development (Hung & Lu, 2007). According to Means and Schneider (2000: 105-107), telecom will be dominated by ‘the building blocks of MetaCapitalism’ - VACs and MetaMarket. With the emergence of the broadband internet and wireless technology, telecom carriers who traditionally focused on long distance and local carriage, merged or entered into alliances with content producers (motion picture, studios, digital cameras, etc) and technology firms (network software and hardware, etc). The new technology and the basic economics ‘are leading to a dramatic convergence and integration in the telecommunications industries’. Compared to traditional companies, which are largely based on physical and working capital, internet companies concentrate less on their physical capital base but more on attracting customers to their electronic networks and services, and retaining them once acquired. Telecom companies involved in increasing mergers are facing a demanding challenge to ‘quickly adopt a MetaMarket model (either virtual – without outsourcing, or real – with

outsourcing) where their businesses are converted into VACs' (Means & Schneider, 2000: 107).

Moreover, as addressed by Bruce (2006), telecom industry plays a key role in providing capability and connectivity to potential e-business users. From a marketing and management perspective, Bruce (2006) held that shareholders, competitors, and consumer pressures have motivated organisations to embrace various aspects of electronic business for the purpose of efficiency and effectiveness. Huang & Lu (2007) also held that survival in highly competitive markets requires the telecom firms to focus on operating efficiency as the basis for competitive advantage.

The nature and rate of adoption of the emerging e-business technologies and strategies are of considerable interests to managers who look to improve operating efficiency and effectiveness. Since profitability is the end-up strategy for every commercial industry, efficiency by any means would be the objective for telecom industries. Speeches or information from the executives of telecom companies would further support this point of view. Rubin Zareski, the chief executive of T-Mobile Macedonia commented on T-Mobile's high profitability and stated that it resulted from 'extremely high efficiency' (Eric, 2007). Additionally, Ericsson emphasised on its website that 'from managing costs to establishing new revenues, efficient evolution is vital' (Ericsson, 2007).

In Australia, efficiency is also of vital importance to telecom companies because of the fierce competition in the outstanding monopoly and oligopoly market. The quest for efficiency has haunted companies on the edge of downsizing and outsourcing since the late 1990s. Information disclosed when it applied for full private ownership showed that

Telstra, the giant Australian telecom operator, had outsourced 20,000 employees by 2003 (CPSU, 2003). In November 2005, Telstra acknowledged a plan for further cutting 12,000 jobs by 2010 via outsourcing to Indian vendors in order to reduce costs and improve its cash flows' (Businessline, 2008). Unquestionable downsizing and outsourcing brought not only a dramatic reduction in human capital but also in physical capital.

### *2.2 Traditional efficiency evaluation in the Telecom sector*

Critical research into productivity efficiency for the telecom industry has long attracted the attention of academics, policy regulators, and decision makers over the world (Tsai et al, 2006). The recent literature review proposes three main approaches to measuring efficiency in telecom: the traditional DEA (data envelopment analysis) measure, the A&P efficiency measure, and the efficiency achievement measure (neo DEA). The DEA approach is commonly used to solve practical problems associated with measuring efficiency while the latter two are its derivations. DEA is a non-parametric method in operations research and economics for estimating the efficiency of productivity.

The DEA method is based on the pioneering work of Farrell's (1957) efficiency measure (relative efficiency). The radial generalises a multiple output – input performance measure in which the ratio of the weighted outputs to weighted inputs for each observation is maximised. The DEA efficiency measure has two versions, the CCR measure and BCC measure. The CCR measure is calculated with constant returns to scale (CRS) assumption whereas the BCC method allows for variable returns to scale

(VRS) (Lien and Peng, 2001). Every decision-making unit's (DMU) efficiency evaluation is viewed as one objective function to be maximised (relative efficiency). There are *n* units or *n* DMUs and each has *m* inputs to come out with *s* outputs.

The classical DEA method has been widely used to evaluate efficiency in the telecom industry. The main areas discussed are: the economic investments in telecommunications that could be demonstrated and quantified as efficiency (Saunders et al., 1995); the impact of adopting new switching technology by computing both input-conserving and output-augmenting measures of performance in the US telecom industry (Majumdar, 1995), the economic effect of privatisation by comparing NTT's performance before and after its privatisation (Sueyoshi, 1998), the efficiency with which countries had been able to develop and provide their telecom infrastructure (Koski and Majumdar 2000); and an increase in productive efficiency due to intensive regulations in the telecommunications industry in the United States (Uri, 2000; 2001; 2003).

Dramatically, Zhu (2000) developed a multi-factor model for measuring financial performance which inherently recognized trade-offs among various financial measures. Zhu (2000) conducted a test to measure the profitability and marketability of the 500 companies ranked by Fortune magazine and found that the top-ranked companies by revenue do not necessarily have a top-ranked performance when viewed as being multi-dimensional. Indeed only about 3% of the companies operated on the best practice frontier. Substantial technical and scale inefficiencies were found, including the fact that a reduction in the current levels of employees, assets, and equity may actually increase revenue and profit levels.

Another related work is the research done by Tsai, Chen & Tzeng (2006). They reconciled diverse efficiency measurements to characterise the productivity of 39 Forbes 2000 ranked leading global telecom operators. Productivity ratings are considered as a key element for achieving greater business performance and a better market position. This study is the first trial to apply the data envelopment analysis (DEA) approach with the classic radial measure (CCR), A&P efficiency measure and efficiency achievement measure respectively, combining multiple outputs and inputs to measure the differences in performance between each leading telecom carrier.

In their study, they first selected the top telecom companies in the Forbes 2000 rankings. Then the data of 40 DMUs were retrieved from their annual reports published on their web sites and then these related features were checked with the UBS Investment Bank database. Total assets, CAPEX (capital expenditure) and employee numbers were the main input variables, while revenue, EBITDA[7] and operating profit (EBIT) were the relative outputs respectively.

The empirical results indicated that the top-ranked Forbes telecom operators are not the same as those having top-ranked CCR efficiency measures. The operating performance indicators of the EBITDA margin, ROA (return on assets), total assets turnover, and net profit ratio which were assessed by the mass investors were related to market success. However, the Forbes ranking displayed a low correlation with the CCR efficiency performance ranking. The results showed that about 20.5% of Forbes 2000 telecom

[7] EBITDA represents operating income plus interest, taxes and depreciation and amortization. It is a good measurement of free cash flow reconciling to the capital of investment and cash earning divided to shareholders.

operators are operating on the best-practice frontier for the CCR efficiency measure, while only 7.7% match the efficiency achievement measurement criteria.

Their study also disclosed that competition continued to increase in a liberalised market, including competition from global and regional alliances formed by telecom operators in fixed-line, internet and wireless markets. Telecom operators have to introduce higher value-added services to develop value-added content, while taking full advantage of revenue streams from internet and wireless broadband to stimulate an increasing use of fixed-line and wireless networks.

Comparatively, the empirical results from Zhu (2000) and Tsai, Chen & Tzeng (2006) reveal some important signals which are relevant to the study of MetaCapitalism. Their findings disclosed that the efficiency evaluated by the traditional DEA approach was not correlated with the performance of revenue and profitability. Rather, as Zhu (2000) indicated, a reduction in assets, employee numbers, and equity levels may increase profitability. Obviously these assertions agree with the principle ideas of MetaCapitalism advocates for decapitalisation, downsizing and innovation in a value-added community (VAC). However, this MetaCapitalism research study may demonstrate something different, which is of great concern.

There are some other ratios such as ROA, ROI (EBIT over total asset), and return on tangible asset that are widely used as efficiency measurement indicators in accounting and finance apart from the DEA approach. However, they only represent the performance of a single period which conflicts with the long term interests of a company (Horngren et al. 2006: 798). Nevertheless, the index of total assets, especially

tangible assets indicator is an important aspect of efficiency evaluation. Since the smaller value of the denominator (total assets or tangible assets) and higher value of the numerator (which relates to depreciation of PP&E) gives a comparatively high outcome, it also logically proves that MetaCapitalism will be advocated by some companies because it decreased the asset base and increased income accordingly, which can be perceived as more efficient in the book.

### *2.3 Previous study on MetaCapitalism efficiency*

Some students conducted research on MetaCapitalist and its effects and of them the studies by Pirello (2001), Ostrovsky (2003) made a significant contribution to this thesis.

Pirello (2001) conducted an empirical research in 2000 of MetaCapitalism with Fortune 100 companies. He divided the firms into two categories: MetaCapitalism firms and non-MetaCapitalism firms. The former group is an example of companies mentioned by Means and Schneider (2000) and those firms consulted by PwC (PwC firms). The non-MetaCapitalism firms (non-PwC firms) are the rest of firms listed in Fortune 100. The testing period was from March 2000 to June 2001. Their performances were evaluated on the share price and the following key indicators as: net working capital (NWC), property, plant and equipment (PP&E), research and development (R&D), and number of employees (NoE).

Based on the core tenets of decapitalisation, downsizing and innovation, Pirello (2001) applied several ratios to test the hypothesis. Regarding decapitalisation, there are three

ratios: PP&E/TA (property, plant and equipment/total asst), NWC/TA (net working capital/total asset) and R&D/Operating Cost. The assumption was that those firms following the MetaCapitalism strategy are reflected by a smaller base of physical and working capital, and the results generally proved this supposition. A change of PP&E/TA showed that PwC firms had higher levels of decapitalisation compared to non-PwC firms, while NWC/TA had larger fluctuations in PwC firms compared to small movements in non-PwC firms. In terms of downsizing, NoE/TA was used to measure this proposition. The results revealed that leading MetaCapitalism firms experienced a continuous major reduction from 1999 to 2000, while non-PwC firms demonstrated a fairly steady decline. The R&D/Operating Cost was used to measure the level of investment in innovation but due to limitations of data in R&D expenditure, the results were rather ambiguous.

Pirello (2001) used the share price as a performance indicator in the market, which showed that the leading MetaCapitalism firms performed well until early 2000 but subsequently suffered a complete loss. PwC firms experienced a negative 12.1% decrease during the same period compared to non-PwC firms which had an overall 1.2% growth. Pirello (2001) suggested that the cause of the adverse share price reaction could be explained as the market perceived negative signals from downsizing and decapitalisation.

Based on research by Pirello (2001), Ostrovsky (2003) extended his research with the Fortune 100 companies from 1998 to 2002. By testing the NWC/TA, PP&E/TA and NoE/TA indices, Ostrovsky (2003) found that the levels of MetaCapitalism are directly related to companies that collapsed or dropped out of the fortune 100 lists.

Both Pirello and Ostrovsky's study on MetaCapitalism revealed a different picture to the one predicted by the consulting firm, that the market only seems to reward the MetaCapitalist firms over a very short period rather than over the long term. However, due to data limitations, they only tested the giant firms on the fortune 100, and the testing period was less than a 4 year time span. Therefore, there does not appear to be sufficient evidence to support their argument.

### *2.4 Research Questions*

The literature review revealed with certainty that efficiency was of vital importance to the telecom industry, although there are some contradictory aspects about traditional efficiency studies of this industry and the MetaCapitalism research of efficiency. For example, Zhu (2000) found that by measuring the telecom companies listed in Fortune 500, a reduction in the number of employees, assets and equity can increase both revenue and profit. Moreover, Tsai, Chen & Tzeng (2006) used TA (total asset), capital expenditure and NoE (number of employees) as efficiency variables and concluded that the efficiency of telecom companies in Forbes 2000 has a low correlation with their revenue and profitability rankings.

Alternatively, the previous research of MetaCapitalism efficiency may depict a different scenario. When the total assets, capital expenditure and total number of employees are leveraged to the lowest base possible through decapitalisation, companies may suffer an unexpected downturn in the stock market or even drop out of the Fortune 500 ranking

list. Decapitalisation is one of the main tenets of MetaCapitalism strategy, which also advocates downsizing (number of employees), and innovation (R&D) in a value-added community (VAC) by outsourcing or offshoring all non-core services and functions.

In view of different opinions on efficiency, this thesis aims to prove whether MetaCapitalism efficiency really works for companies in the free capital market over the long run. There are no doubts about efficiency itself or information technology itself, the crux of the matter is who will use it, how will they use it, and more importantly, to what extent? Therefore, by selecting the Australian telecom industry as a sample, an empirical research is designed to test how efficient these companies ARE in terms of profitability and their corresponding market performance during the period from 1989 to 2007. The share price will be used as an important index to evaluate their market performance.

This research therefore adds weight to previous MetaCapitalism research because it is the first trial to test companies in one industry, not only giant companies. And the test is over a long period. Hence, the empirical results are believed to generate more reliable evidence for evaluating efficiency in an explicit and implicit way. How to run a more sustainable rather than a risky business is vitally important for long-term success, especially in view of the current financial climate.

# CHAPTER THREE

METHODOLOGY

### *3.1 Objective*

The objective of this empirical research is to testify whether the "Business Bible" for the 21st - century companies – the "tremendous efficiency" of MetaCapitalism really works over the long term, or has it actually misled companies to set their feet on the safety margin? Furthermore, has it to some extent contributed to corporate collapses? Therefore, this research will investigate any causal relationship between the level of MetaCapitalism efficiency and corresponding profitability, and performance in the stock market. The Australian telecom industry was chosen because of its significance. Having collected data from 1998 to 2007, I am afforded an opportunity to analyse the contribution of MetaCapitalism to the consequences (profit & share price) over the long term. This research will cover four primary topics:

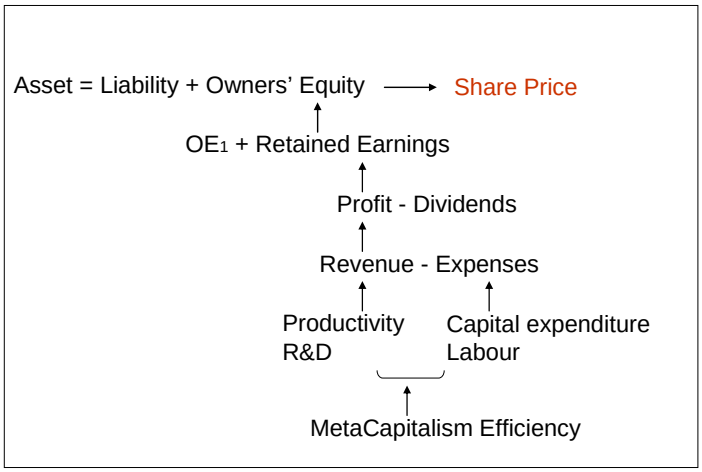
(1) This research will investigate any correlation in market performance and MetaCapitalism efficiency of telecom companies listed on the ASX from 1989-2007 grouped and ranked in terms of their profitability.

(2) It will also explore similarities and differences in the empirical results within the different groups.

(3) This research intends to examine the extent to which each individual component of the MetaCapitalism indices affects change in market performance, particularly where any index has had a more significant impact on market performance than any others.

(4) This research focused on how MetaCapitalism strategy was perceived in the stock market and was also interested in exploring how market reactions shape business strategies.

## *3.2 Hypothesis*




Note: $OE_1$ is the owners' equity in the previous period

Figure 3.1: MetaCapitalism Efficiency & Accounting Equation

According to Means & Schneider (2000), adopting the MetaCapitalism strategy will have a positive impact on market performance. As indicated in Fig 3.1, if the company follows MetaCapitalism strategy to transform into the e-business model by decapitalisation, downsizing and innovation, then enormous efficiency will be achieved due to reductions in cost and an increase in revenue (productivity). Profitability will subsequently rise, which in turn will result in growth in equity. Correspondingly, the company will be rewarded in the market, which will be embodied in a rise in the share price (see figure 3.1).

On the other hand, if the company keeps its traditional business model of a large base of physical assets and capital in this new era of technology, then it will perform poorly on the stock market (see figure 3.1).

## *3.3 Theory of Reflexivity*

### 3.3.1 Theoretical foundation of Alternative Research

Karl Popper claimed that theory can be considered scientific if and only if it is falsifiable (Popper, 1945). This doctrine has been widely accepted in natural science and social science. However, it is being challenged nowadays by alternative researchers in social sciences. For example, Tinker & Gray (2002) were concerned about how people could develop research arrangements to measure and reflect those complex social factors properly. Two instances of this are rational behaviour and market efficient hypothesis (EMH). It was argued that the rational behaviour for the single goal of an individual and organisation was questionable. Instead of always striving towards goals, people reconstruct goals retrospectively to give meaning to the action (Chua, 1986). Moreover, EMH cannot be proved because of asymmetrical information in the financial markets (Tinker, et. al, 1982).

Ontologically, the subjective position held by alternative researchers largely influenced by Popper, distinguished them from the mainstream who assumed that the relationship between the observer and the being observed are separate and mutually exclusive. On the other hand, critical and interpretative researchers argued that with a natural science such as physics, the observer and the being observed “out there” are inter-dependent and the observer was embedded in and transformed with the reality they apprehend (Tinker & Gray, 2002). Morgan (1988) also argued that the interpretations (e.g. the financial report) later become the “resources” in the ongoing construction and reconstruction of reality. Therefore this was a partial and incomplete reality constructed and reduced to a

numerical picture. Only quantifiable data are included in this reality while other qualitative factors which cannot be measured, or do not want to be measured on a monetary basis, are excluded.

It was argued epistemologically that the nature of knowledge in social science was interpretive and metaphorical (Morgan, 1988), purposive and constituted by human needs and objectives (Chua, 1986) in nature. Therefore, alternative researchers tried to explore the implications under the quantified value which disclosed the nature and appropriation of reality. Methodologically they held that qualitative research was more preferable than empirical research where context was weighed over content.

In view of these discussions in terms of research methodology derived from epistemology and originated from ontology, most of the alternative researchers tried to privilege qualitative over quantitative and context over content. However, they failed to bring forward pragmatic, theoretical propositions to replace the current practical framework. Though the reality they argue are partially reduced to measurable values, at least there was something that people could logically refer to and improve. The advocate of context in relativism without the support of the content would end in nothing but indulging in sophistry. Practically, there was a call for a workable theory which could combine the two different philosophical views rather than simply define them in a confrontational manner. To this end George Soros and his theory of comparative reflexivity provided more convincing and workable instructions for practical purposes.

### 3.3.2 Theory of Reflexivity

Despite different opinions on the theory of reflexivity, George Soros has made a great contribution in setting forth his philosophical stand based on extensive practice, particularly in the financial markets. Soros (2000: 58) pointed out that 'financial markets differ from other markets in that the participants do not deal with known quantities, they are trying to discount a future which is contingent on how the market discounts it at present'. Therefore people must abandon two of the cherished pre-conceptions of economic theory: rational behaviour based on utility maximisation, and equilibrium as EMH. Similar to the other alternative researcher, Soros (2008) indicated that the doctrine of unity of the same methods applied to natural science and social science was problematic.

The core of reflexivity theory was how to distinguish between the objective and subjective aspects of reality. Epistemologically, there is a two-way reflexivity which must be clarified in order to obtain knowledge: the cognitive function and the participating (manipulative) function. According to Soros (2008: 27-37), the former refers to the course of events whereas the latter relates to the participant's thinking. In other words, people tend to perceive reality objectively, which derives from the cognitive function, but they are also the thinking participants in what they try to understand, and their imperfect knowledge has subjective impact on what they perceive. This makes it a manipulative process. The central point being that the relationship between thinking and reality is reflexive – a two-way reflexivity, that is, what we think has a way of affecting what we think about. In everyday events, neither the participating function nor the cognitive function undergoes any significant change. Reflexivity occurs

only when a situation has thinking participants, and the financial market is a good example of such an environment.

### 3.3.3 Reflexivity of Financial Markets

In the financial market where people buy and sell shares, they are both observers and participants. Hence, the problem is there is only one objective aspect, but there are as many subjective aspects as there are participants. To this extent, reflexivity prevents economists from producing theories that would explain and predict the behaviour of financial markets in the same way that natural scientists can explain and predict natural phenomena (Soros, 2008: 8). In the stock market, buy and sell decisions are based on expectations about future prices, and future decisions, in turn, are contingent on present buy and sell decisions (Soros, 2008:55). Soros' theory of reflexivity explains the indeterminacy or uncertainty of the stock market.

Soros (2008: 5) also raised an important assumption, that is, the *independent variable* of one function is the *dependent variable* of the other. If both functions connect the same variables at the same time, one function may deprive the other of an independent variable. Occasionally the price of an individual company's stock affects that company's fundamentals in a self-reinforcing manner, but when we look at the larger, macroeconomic picture, we find that reflexivity interactions are the rule, not the exception (Soros, 2000: 64).

Moreover, reflexivity can be interpreted as circularity between the participants' understandings and the actual state of events (Soros, 2008: 10):

> The cognitive function and the manipulative function operate *concurrently but not sequentially*. If the feedback were sequential, it would produce a uniquely determined sequence leading from facts to perceptions to new facts and then new perceptions, and so on. It is the fact that two processes occur simultaneously that creates indeterminacy in both the participants' perceptions and the actual course of events. This way of looking at reflexivity will be particularly useful, as we shall see, in understanding the behaviour of financial markets.

### 3.3.4 Reflexivity in MetaCapitalism research

In understanding MetaCapitalism and how markets perceive this strategy, it is necessary to understand the reflexivity of the stock market in two ways. Firstly, how to define the independent variable and the dependent variable? According to the theory of reflexivity, the *independent variable* of one function is the *dependent variable* of the other. If both functions connect the same variables at the same time, one function may deprive the other of an independent variable (Soros, 2008: 5). With the MetaCapitalism and the share price changes, the dependent variable (share price) and independent variable (MetaCapitalism efficiency) can be formulated in two ways as:

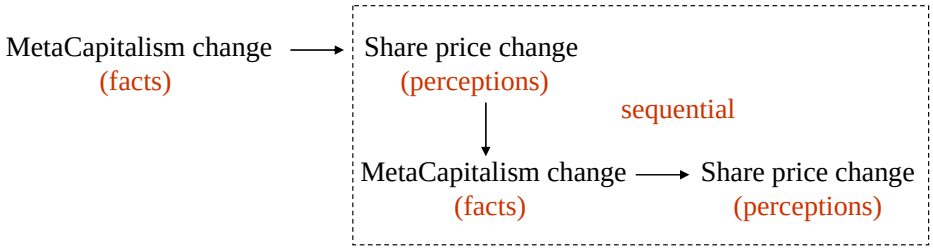
$$^{8}\ SP_t = a + \beta_1 (MetaCapitalism)_t + \varepsilon \qquad (1)$$

$$MetaCapitalism_t = a + \beta_1 SP_t + \varepsilon \qquad (2)$$

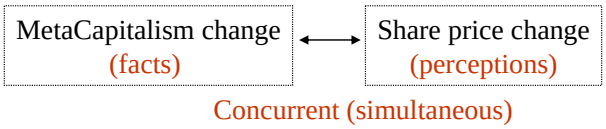
Secondly, how to understand the cognitive function and the manipulative function of stock market in perceiving MetaCapitalism? If there is an efficient and effective stock

[8] In the equation (1) & (2), SP is the change of share price.

market, there would be only a cognitive process where changes of MetaCapitalism strategy can be reflected in the stock market sequentially. That is, MetaCapitalism strategy can affect the share price and then the change of the share price will have a further impact on MetaCapitalism strategy. This cognitive process can be summarised as:




However, the participating (manipulative) function of the market may vary the results due to indeterminacy, which means the participants thinking is contingent on the expectation of the future, and the future is based on the perception of the past and the present. Given the reflexivity of the manipulative function, there is also an expectation that MetaCapitalism strategy will be reflected concurrently or simultaneously with the share price change. This manipulative process can be summarised as:




Therefore this empirical research is designed in consideration of the reflexivity in the stock market, which was neglected by previous MetaCapitalism research by Pirello (2001) and Ostrovsky (2003).

## *3.4 Methodology*

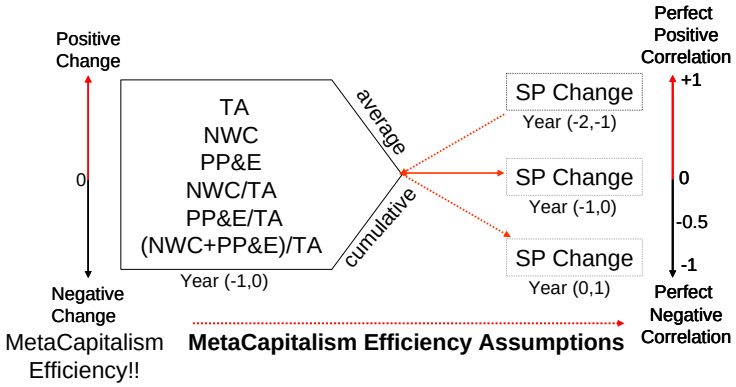



Figure 3.2: Research Methodology

### 3.4.1 MetaCapitalism Equations

Based on the three main tenets of decapitalisation, downsizing and innovation, MetaCapitalism efficiency is reduced to some measurable indices. Due to data limitation, innovation is not tested in this thesis. Thus MetaCapitalism efficiency is translated to some measurable indices such as NWC (net working capital), PP&E (property, plant and equipment), NoE (number of employee) during a period of time. TA (total asset) is used as a common measuring base to determine the overall structure of NWC, PP&E and NoE. Furthermore, the percentage changes in each of these indices from one period to the next are used to represent the extent to which a specific company has followed the tenets of the strategy. For example, MetaCapitalism indices change in period (-1, 0) represent the changes of each index from 1989 to 1990, 1990 to 1991 and so on until 2006 to 2007, totally 18 periods. In specific, “0” represent the current year and “-1” represent the previous year. The indices are formulated in:

$$\frac{NWC + PP\&E + NoE}{TA}$$ [9]

This finally leaves six indices (see figure 3.2) to be testified as:

- NWC Change
- PP&E Change
- TA Change
- NWC/TA Change
- PP&E/TA Change
- (NWC+PP&E)/TA Change

By definition the higher negative (- ve) change in each index represents an aggressive application of MetaCapitalism strategy, which meant that the company was decreasing its physical and working capital. "0" may represent no application of MetaCapitalism strategy. On the other hand, the higher positive (+ ve) change represents the passive application of MetaCapitalism strategy, that is, the company does not follow decapitalisation.

Separation of the indices is deemed necessary to test the extent to which each index affects the share price. By looking at each index individually, it is possible to comprehend the strength of the relationship between each index and the share price. This will allow an insight into determining which index the market responds the most. This information is useful in gaining knowledge about which asset or capital triggers the greatest response in share price change.

[9] Due to the availability of data in employee numbers (not compulsory for company to disclose in financial reports), the analysis of NoE which have been excluded from this thesis will be presented in later research.

The MetaCapitalism indices are analysed with the share price change in three periods (see figure 3.2). Period (-2, -1) represents the previous period and period (0, 1) stands for the following period, comparing to the current period (-1, 0). For example, if we take 1991 as the current year, then the share price change from 1990 to 1991 is understood as (-1, 0), its change from 1989 to 1990 and from 1991 to 1992 therefore are represented by (-2, -1) and (0, 1) relatively. More explanations can be found in the reflexivity in correlation and regression (see section 3.4.3.2).

### 3.4.2 Data Collection

Based on the research question, an empirical research is designed with three progressive steps to obtain a more accurate and comprehensive picture of the Australian telecommunications industry under transformation by a new business model, as suggested by the prestigious consulting firm.

The study used data from the ASX telecommunications companies from 1989 to 2007 financial year in the FinAnalysis database. Most of the companies have a financial year from July 1$^{st}$ to June 30$^{th}$ except for Hutchison Telecommunications (Aust) Ltd (known as Three) which has its financial year from January 1$^{st}$ to December 31$^{st}$. In this thesis the data were updated to June 30$^{th}$, 2008.

According to the ASX board, companies must meet one of three criteria to be listed in Australian Stock Market. They are:

- A$2.0 million in net tangible assets (including amounts raised under the IPO)[10].
- Market capitalisation of at least $10.0 million (post-IPO).
- Net profit after tax of $1.0 million (in aggregate) over the last 3 years plus A$0.4 million over the last 12 months and your organisation is still profitable.

Source: ASX[11], 2007

De-listed companies are those that have been removed from the ASX's official list during the preceeding 6 months. Although the ASX believes that every care is taken in the compilation of the information on de-listed companies, it cannot warrant its accuracy and is not liable for any errors or omissions (ASX, 2007).

### 3.4.3 Method of evaluation

Two methods were used to conduct this empirical research, one was ranking and grouping, the other was correlation and regression. Total revenue was the criteria for ranking. The ranking list provided a picture of a company's market share in each year and changes during the whole period are explained by its ranking. Grouping allows the research to put an insight into any casual relationship with similar companies according to certain criteria. With this correlation analysis, it was possible to test the average and cumulative change between the share price and the MetaCapitalism indices. Specifically, empirical research will be conducted not limited to using the average date but also with cumulative data which allows a further overall evaluation of the whole telecom industry.

#### 3.4.3.1 Ranking and grouping

[10] IPO means Initial Public Offering - the share offer when a company first decides to change to public status.
[11] ASX: Australian Stock Exchange

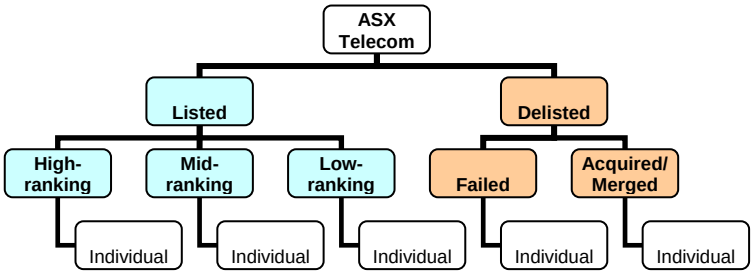



Figure 3.3: Organization chart of empirical research design

The Australian telecommunications companies studied in this research are listed and de-listed companies from 1989 to 2007. According to the ASX board, a company must meet certain criteria of total assets and profitability levels to be listed. De-listed companies are those that have been removed from ASX official list during the last six months. Most companies are de-listed because they were acquired by another company, they merged with another company, or they had solvency problems which meant they could not meet the criteria (ASX, 2007).

To begin with, every company listed for at least two years was sorted by their total revenue in each year from 1989 to 2007 (see Appendix A). Thus those companies being listed in 2007 were eliminated from this study. The ranking presents an overall picture of each company's performance (including the de-listed ones) in the Australian telecom market at each year, and any change during the 19-year period. Correspondingly, every company that dropped from ASX in any year formulated the de-listed group in comparison to the listed one. Suspended companies were filtered to the de-listed group because there are normally two possibilities for them, either being de-listed or being listed again when they could meet the listing criteria (ASX, 2007). However, there are some previous cases where those companies were listed again. This mean there are 28

companies covered in the listed group while 13 were included in the de-listed group. At the first level, an average overall sensitivity of share price to MetaCapitalism indices were tested between the listed and de-listed group separately (see figure 3.3).

Secondly, the listed and de-listed groups were further divided into relevant sub-groups for further testing. The listed group was divided into sub-groups by ranking and revenue as a high-ranking group, a mid-ranking group, and a low-ranking group (see figure 3.3). This was different from the previous study where the companies were ranked up and down. The reason for using revenue as the grouping criterion was because of the rapid change in the telecom market, for example, in 1989 there were only 3 listed companies while in 2007 there were more than 30. Therefore it was not easy to accurately define the change in ranking up or down, especially over almost two decades. Secondly, there was an outstanding oligopoly in the Australian telecom market noticed on the ranking table. It can be seen that companies with a certain scale by revenue maintain their market position most of the time. Therefore it was more reasonable to divide the listed companies by their level of revenue. The high ranking group consisted of companies with revenue above $100 million, which included the first 9 companies. The mid ranking group consisted of companies with revenue above $10 million and below $100 million, which included the following 11 companies. The low ranking group contained those companies with revenue below $10 million, and the last 8 companies are included in this group (see Appendix A&B).

The de-listed group was divided into two sub-groups, the failed group and the acquired & merged group (see figure 3.3). The failed group is those companies suspended or de-listed because of solvency problems. They are the first 7 companies listed on the failed

group. The acquired & merged group are those companies being acquired by another company or merged into another company; they are the last 6 companies (see Appendix A). The reason for combining the acquired and merged companies was due to the limited data available and their similarities.

Lastly, in order to further verify the relationship between the level of MetaCapitalism efficiency and market value, one or two individual companies were selected from each sub-group by their change in ranking, particularly the high ranking companies and failed companies. The aim being to explore any significant index correlated with MetaCaptalism efficiency that contributed to a company's success or failure.

#### 3.4.3.2 Correlation and Regression

Correlation analysis is the study of the relationship between two variables (Lind et. al., 2005: 429). A measure of the linear (straight line) strength of the relationship between two sets of interval scaled or ratio scaled variables is given by the coefficient of correlation. The value of the correlation coefficient *r* may range from -1.00 to +1.00 inclusively. A value of -1.00 indicates perfect negative correlation. A value of +1.00 indicates perfect positive correlation. A value of 0.50 indicates moderate correlation and 0.00 indicates there is no relationship between the two variables under consideration (Lind et al., 2005: 431 – 433). Therefore, regarding the correlation coefficient between share price and MetaCapitalism indices, a value of -1.00 suggests a perfect negative correlation between the change of share price and MetaCapitalism indices, which indicates that decapitalisation and downsizing may increase the market value of the company perfectly. On the other end, a value of +1.00 would suggest a perfect positive

correlation, that is, decapitalisation and downsizing have a completely negative impact on the company's market value. A correlation coefficient of 0.00 may imply there is no relationship between MetaCapitalism indices and share price. While 0.50 divide the strength of correlation as weak or strong. So less than -0.5 may display a strong negative correlation and large than +0.5 may suggest a strong positive correlation (see figure 3.2).

- Cognitive function

In view of the reflexivity of the stock market, three periods of share price change were considered with MetaCapitalism indices change, the previous period (-2, -1), the current period (-1, 0) and the following period (0, 1) (see figure 3.2). According to the theory of reflexivity in the financial market, if there is only an objective cognitive process then 'it would produce a uniquely determined sequence leading from facts to perceptions to new facts and then new perceptions' (Soros, 2008: 10). In this case it was meaningful to investigate the correlation of change in the MetaCapitalism indices in the current period (-1, 0) with change in the share price in the previous period (-2, -1) and the following period (0, 1). So by viewing changes in MetaCapitalism efficiency in the current period (-1, 0) as the facts, the correlation with the perception of share price in the previous period (-2, -1) and perceptions in the following period (0, 1) was assumed to generate a consistency in sequence (see figure 3.4).

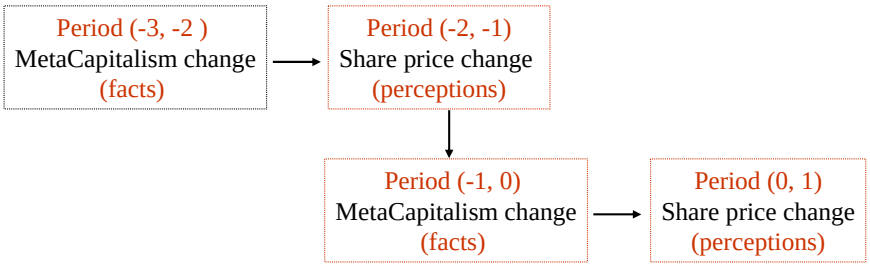



Figure 3.4: Cognitive function of MetaCapitalism efficiency in stock market

- Manipulative function

Given the reflexivity of the stock market, then it is believed that in addition to the cognitive function, there is also a manipulative function. By looking at the correlation of the share price in the same period (-1, 0) with the MetaCapitalism indices change (-1, 0), the stock market is assumed to have a simultaneous participation with the company's MetaCapitalism strategy. Though the share price can be an indicator for the MetaCapitalism efficiency change, however, this is not an objective and independent indicator which is value free from the MetaCapitalism itself. In the same time the share price change also affects the level of MetaCapitalism efficiency, this can be understood in the process of action and reaction in physics (see figure 3.5).

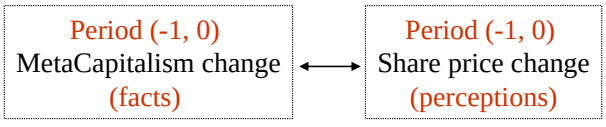



Figure 3.5: Manipulative function of MetaCapitalism efficiency in stock market

Regression analysis was introduced by Francis Galton in 1886. The modern interpretation of regression analysis was concerned with the study of one dependent variable with one or more explanatory (independent) variables, with a view to

estimating and/or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter (Gujarati, 2008: 17-18).

In this research, the regression analysis was used to investigate how the dependent variable (the share price change) can be explained by the independent variables (the MetaCapitalism indices), which was explained by the cognitive function (see equation 3). However, due to the reflexivity of the stock market, it was also necessary to test how each MetaCapitalism index can be explained by the share price, and this was the manipulative function. In such a case, each index was the dependent variable and the share price change was the independent variable (see equation 4 – 9).

(3) $$SP_t = a + \beta_1 ta_t + \beta_2 pp\&e_t + \beta_3 nwc_t + \beta_4 (pp\&e/ta)_t + \beta_5 (nwc/ta)_t + \beta_6 ((pp\&e + nwc)/ta))_t + \varepsilon$$

(4) $$TA_t = a + \beta_1 SP_t + \varepsilon \text{ or } SP = a + \beta_{1t} TA_t + \varepsilon$$

(5) $$PP\&E_t = a + \beta_2 SP_t + \varepsilon \text{ or } SP_t = a + \beta_{2t} PP\&E + \varepsilon$$

(6) $$NWC_t = a + \beta_3 SP_t + \varepsilon \text{ or } SP_t = a + \beta_3 NWC_t + \varepsilon$$

(7) $$PP\&E/TA_t = a + \beta_4 SP_t + \varepsilon \text{ or } SP_t = a + \beta_4 PP\&E/TA_t + \varepsilon$$

(8) $$NWC/TA_t = a + \beta_5 SP_t + \varepsilon \text{ or } SP_t = a + \beta_5 NWC/TA_t + \varepsilon$$

(9) $$(PP\&E + NWC)/TA_t = a + \beta_6 SP_t + \varepsilon \text{ or } SP_t = a + \beta_6 (PP\&E + NWC)/TA_t + \varepsilon$$

Regarding this research, the correlation coefficient is applied to measure the regression of each MetaCapitalism indices and the share price change. The multiple regression models are not applied due to resource limitation. Therefore equation (3) is not tested.

# CHAPTER FOUR

EMPIRICAL REFLECTIONS

## *4.1 Objectives*

Based on the research objectives outlined in Chapter 3 this empirical research is designed to test the correlation between a company's level of the MetaCapitalism efficiency and its performance in the real telecom market and share market by using *average data and cumulative data*. In consideration of stock market reflexivity, the cognitive and the manipulative functions will be tested against changes in the share price and the MetaCapitalism indices.

A comparison of the results in different group levels allows me to build an overall idea about how the MetaCapitalism strategy has been adopted in the Australian telecom industry. It also provides a rough picture on how the e-business model of leveraged physical capital and working capital can be perceived and manipulated in the stock market.

The results of the test will verify the validity of the MetaCapitalism efficiency hypothesis.

## *4.2 Comparison of listed group and delisted group*

### 4.2.1 Listed group

| **MetaCapitalism Indices** | **Share Price** | **Share Price** | **Share Price** |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (0,1) | period (-2,-1) |
| **TA** | 0.13 | -0.22 | 0.43 |
| **PP&E** | -0.20 | -0.10 | 0.22 |
| **NWC** | -0.13 | -0.14 | -0.09 |
| **PP&E/TA** | -0.23 | -0.12 | -0.13 |
| **NWC/TA** | 0.13 | -0.26 | -0.24 |
| **(NWC+PP&E)/TA** | -0.23 | 0.02 | 0.29 |

Table 4.1: Listed group (average data) correlations

Changes to the MetaCapitalism indices in the current period (-1, 0) and the share price during the same period (-1, 0) indicated that there are four negative correlations: PP&E, PP&E/TA, NWC and (NWC+PP&E)/TA. TA and NWC/TA correlate positively with the share price although they are insignificant (see table 4.1).

During the whole period the share price experienced two dramatic increases, from 1995-1996 and from 1997-1998, by 298.3% and 334.49%, respectively. In the first period all the indices showed an increase, especially the NWC which jumped by 822.25%. In the second period all the indices showed a negative growth rate except TA. Share prices fell continuously from 2000 to 2003 but when they rose again in 2004 there was an overall increase of 68.08%, except for TA which changed negatively, and NWC in particular, which decreased by 893.69% (see Chart 4.1).

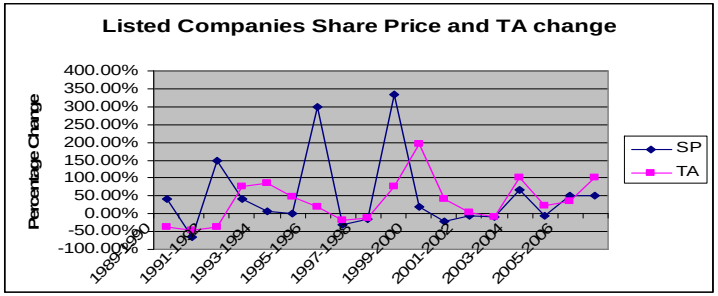
During that 18 year period the listed companies have increased their TA and PP&E base continuously, especially since 2000. The trend for NWC is unclear because it fluctuated dramatically. In view of these changes in TA and PP&E, it would appear that

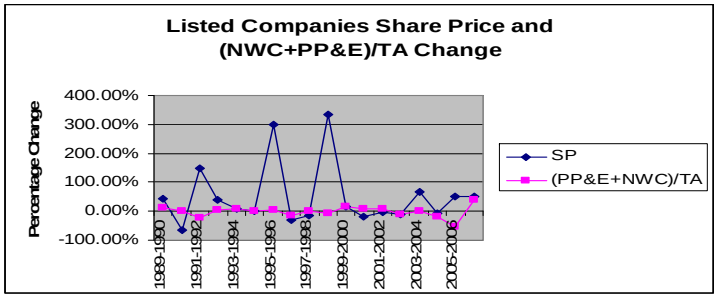
decapitalisation was not the dominate trend for ASX listed telecom companies, although the strategy for NWC may blur these results somewhat.

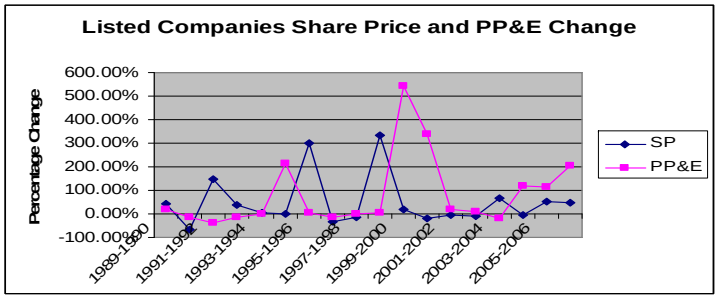
When the MetaCapitalism indices change in period (-1, 0) are reflected in the following period (0, 1) in the stock market , then all the indices have a negative correlation with changes in the share price except (NWC+PP&E)/TA which bore no relationship with these changes. This may prove that the stock market has a positive perception of decapitalisation (see table 4.1).

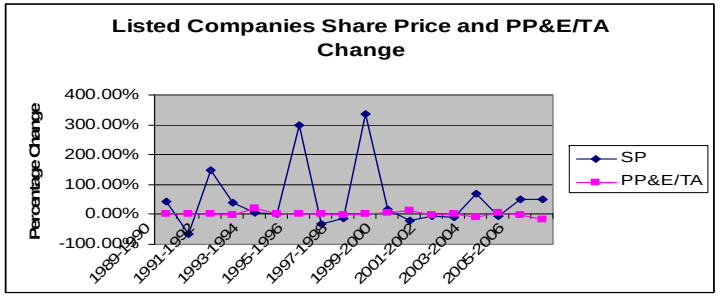
On the other hand, fluctuations in the share price during the previous period (-2, -1) showed a positive correlation with TA, PP&E and (NWC+PP&E)/TA. TA in particular, demonstrated a more significant correlation (0.43) with the share price change. The results of TA and PP&E are not the same as the results tested during the following period (-1, 0). This inconsistency in sequence may signify that there are more than cognitive functions in the stock market (see table 4.1).

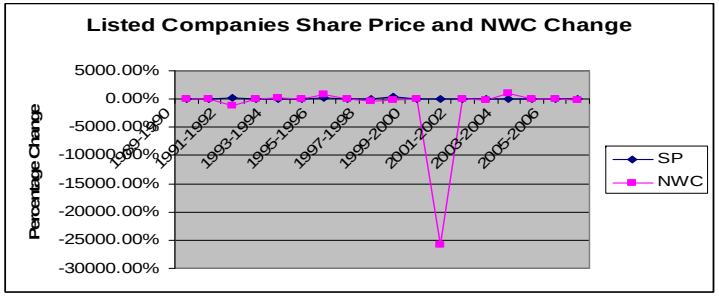
A comparison between changes in the MetaCapitalism with changes in the share price during three periods was more logically consistent than the current period (-1, 0), but less consistent than the period (-2, -1) and (0, 1). This may suggest that the manipulative function in the stock market has a stronger impact on the MetaCapitalism efficiency than its cognitive function.



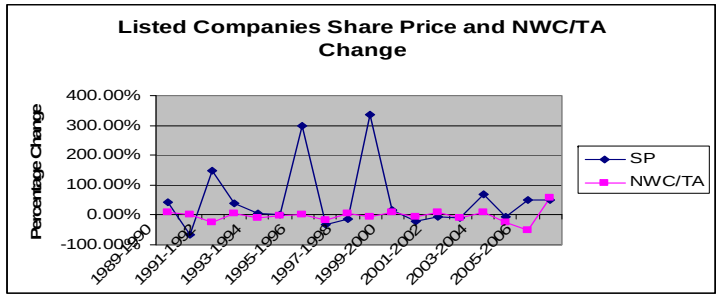




Chart 4.1: Listed Companies Share Price & the MetaCapitalism indices correlations

### 4.2.2 Delisted group

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (0,1) | period (-2,-1) |
| **TA** | 0.63 | -0.22 | -0.22 |
| **PP&E** | -0.06 | -0.26 | 0.08 |
| **NWC** | 0.06 | 0.32 | 0.28 |
| **PP&E/TA** | 0.06 | -0.25 | -0.11 |
| **NWC/TA** | 0.03 | 0.32 | 0.23 |
| **(NWC+PP&E)/TA** | 0.29 | -0.09 | 0.03 |

Table 4.2: Delisted group (average data) correlations

Because the stock market has a manipulative function the MetaCapitalism indices were tested with changes in the share price during the same period (-1, 0). The results showed that all the MetaCapitalism indices showed a positive correlation with the share price change except for PP&E, which a demonstrated a weak negative correlation. Of the six indices, TA (0.63) and (NWC+PP&E)/TA (0.29) showed comparatively insignificant correlations with the share price change. Especially the movement of share price is more aligned with TA change (see table 4.2).

Share prices have been dropping since 2000. In 2003-04 when TA soared by 2,764.63% to its historical high point, the share price rebounded by 451.11%. During the same period, only NWC showed a positive change at 72.34%. The other five indices all demonstrated negative changes as, PP&E decreased by 27.55%, PP&E/TA decreased by 31.98%, NWC/TA dropped by 95.02% and (NWC+PP&E)/TA dropped by 64.23%. In terms of (NWC+PP&E)/TA, when it reached its peak during 1992-1993 at 8,583.94%, the share price also increased by 87.31%. De-listed companies presented a stronger signal for decapitalisation overall, although the strategy seemed to be negatively perceived and manipulated in the stock market (see Chart 4.2).

When the MetaCapitalism indice changes were perceived during the following period (0, 1), the share price change showed a stronger positive correlation with NWC and NWC/TA compared to the previous period. However, other indices demonstrated negative correlations especially in TA, PP&E, and PP&E/TA. This may explain somewhat that the decapitalisation assumption needs time to be realised, according to the market's cognitive function. In view of these result the question is have these companies applied the efficiency strategy to a greater extent than necessary (see table 4.2).

The share price change during the previous period (-2, -1) showed two negative correlations in TA and PP&E, but the strength was insignificant. When the share price change was positive then companies may decrease their asset base but when the share price was negative they may increase their asset base. For example, when the share price plummeted in 2003-2004 the TA had largely decreased by -16.9%. This important evidence proves that the MetaCapitalism strategy had been used in these de-listed companies (see table 4.2).

With regards to the cognitive function, de-listed companies showed more consistency than those listed ones. PP&E and TA were negatively perceived by the market during period (-2, -1) and period (0.1). During both periods the TA was the same at -0.22. Alternatively the NWC had a positive influence on share price change which suggests that the manipulative function of the market demonstrated an opposite opinion on the MetaCapitalism strategy than the cognitive function.

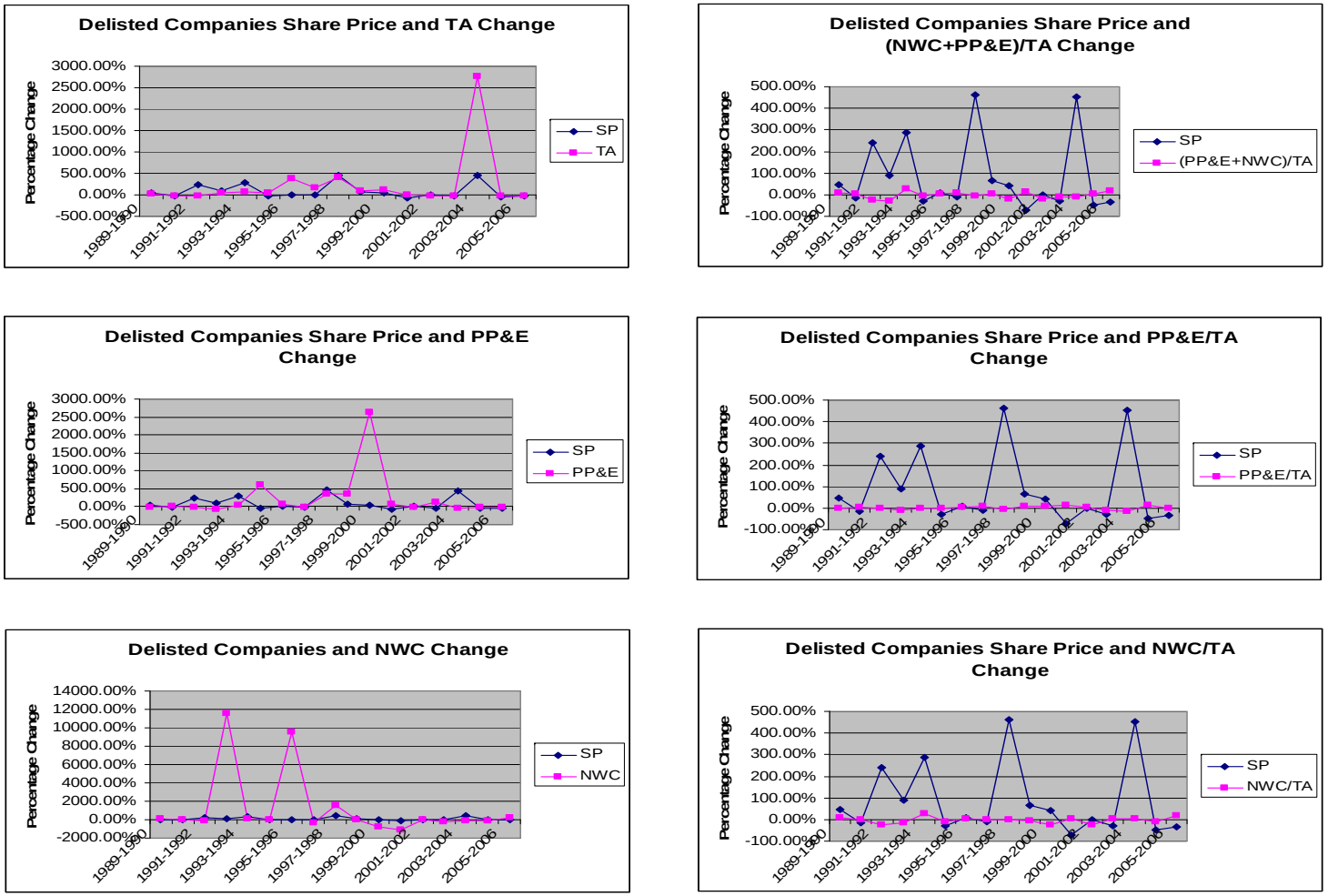



Chart 4.2: Delisted Companies Share Price & the MetaCapitalism indices correlations

### 4.2.3 Summary

When testing the correlation between the MetaCapitalism indices (-1, 0) and the share price change (-1, 0) there was more evidence of decapitalisation in the de-listed companies than the listed companies. Of the six indices, TA held a positive correlation with the share price change in the listed and de-listed group but was more significant in the latter (0.63). Overall the listed group had more indices showing negative correlations (4 indices) with the share price change whereas in the de-listed group more indices had positive correlations when the share price changed (5 indices).

The correlation test of the MetaCapitalism indices and the share price change in the three periods proved that there is time difference, especially for listed companies, before the market perceived decapitalisation positively, as anticipated by the consulting firm. A comparison of the two groups revealed that the de-listed companies were consistently more positive in sequence during the cognitive process, especially with change in the TA.

The manipulative process generally has more strength than the cognitive process in the stock market, as perceived by the MetaCapitalism strategy.

*4.3 Subgroups of listed group*

### 4.3.1 High-ranking subgroup

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (0,1) | period (-2,-1) |
| **TA** | 0.49 | -0.50 | -0.05 |
| **PP&E** | -0.55 | -0.05 | 0.37 |
| **NWC** | 0.78 | -0.36 | -0.48 |
| **PP&E/TA** | -0.57 | 0.02 | 0.35 |
| **NWC/TA** | 0.60 | -0.21 | -0.41 |
| **(NWC+PP&E)/TA** | -0.19 | -0.28 | 0.12 |

Table 4.3: High-ranking subgroup (average data) correlations

Changes in the MetaCapitalism indices and share price within the same period (-1, 0) demonstrated that high-ranking companies were significantly correlated with five indices. Of them PP&E (-0.55) and PP&E/TA (-0.57) present negative correlations while NWC (0.78), TA (0.49) and NWC/TA (0.6) demonstrate strong positive correlations with share price change. (NWC+PP&E)/TA shows a negative correlation but was fairly weak compared to the other indices (see table 4.3).

The share price experienced an overall upward trend from 1992-2007, fluctuating from -52.10% to 91.92%. When share price dropped to the bottom by -52.10% in 2000-2001, it witnessed a NWC and NWC/TA decrease by -181.16% and -107.64% respectively. During the same period, TA had a minor increase of 24.64% while PP&E and PP&E/TA increased drastically by 571.17% and 604.82% respectively (see Chart 4.3). Overall PP&E, TA, and PP&E/TA showed an upward trend while NWC and NWC/TA presented some fluctuations. It was questionable whether the decrease in the share price during 2000-2001 was because of decreasing NWC and large investment in PP&E, or

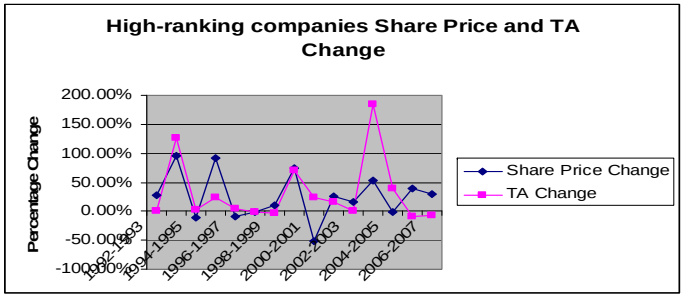
the other way around. Either way these high ranking companies did not follow decapitalisation, as witnessed by the PP&E change at least.

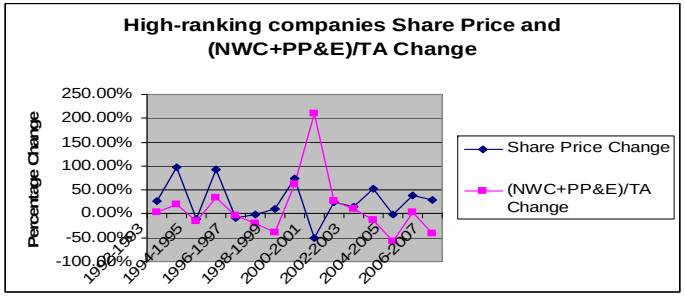
When decapitalisation was perceived by the share price during the following period (0, 1), then the TA, NWC, NWC/TA and (NWC+PP&E)/TA demonstrated a negative correlation with change in the share price, which is exactly the opposite of the previous period (-1, 0). Alternatively the share price can be explained by change in the PP&E or PP&E/TA. The TA was significant (-0.50) while the NWC was less (-0.36) (see table 4.3). This inconsistency illustrates the complexity of the stock market in reflecting a company's business behaviour, which could explain why the manipulative function may negatively affect the way the stock market perceived the MetaCapitalism. Theoretically the market should have a negative correlation with the indices as shown in period (0, 1), however the manipulative function alters the results on TA and NWC.

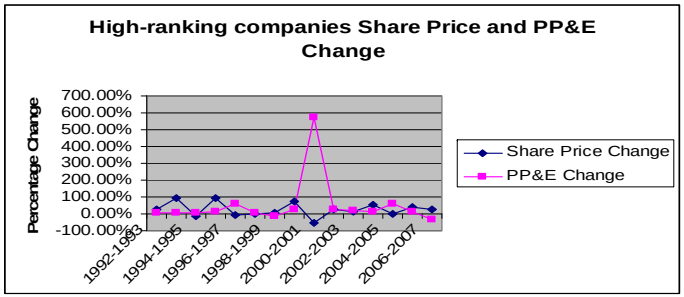
The share price change in the previous period (-2, -1) did not show results consistent with those in period (0, 1), especially the NWC and NWC/TA which made a negative impact on the share price. PP&E and PP&E/TA, on the other hand, correlated positively with the change in share price. TA is not related because it was insignificant. This further proved that the manipulative function altered the results. And the inconsistency of results in period (-2, -1) and period (0, 1) indicate there is more than the cognitive function in the stock market.

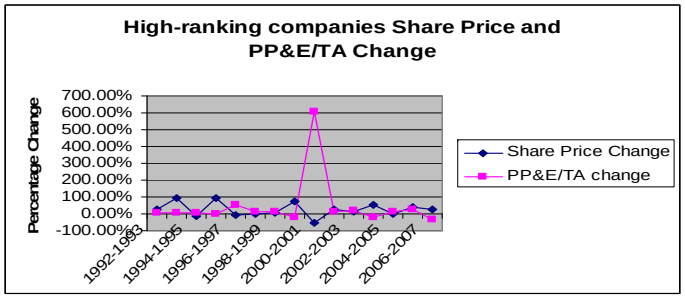
Interestingly, it disclosed that the NWC and PP&E are important components that are affected by the MetaCapitalism strategy. So when the performance was relatively good in the stock market, companies were inclined to reduce NWC and increase PP&E, but when performance was relatively bad then they tended to increase NWC and decrease

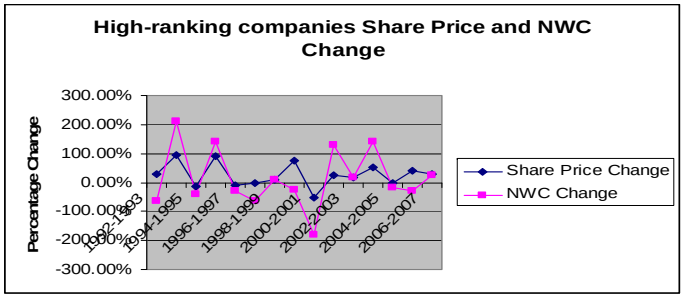
PP&E. This may be disclosed from another perspective where these high ranking companies did not follow PP&E assumptions. But the NWC may comply with the assumption made by the consulting firm. It was also questionable whether not following the consulting firm's strategy completely was the reason for their success in the market (see table 4.3).



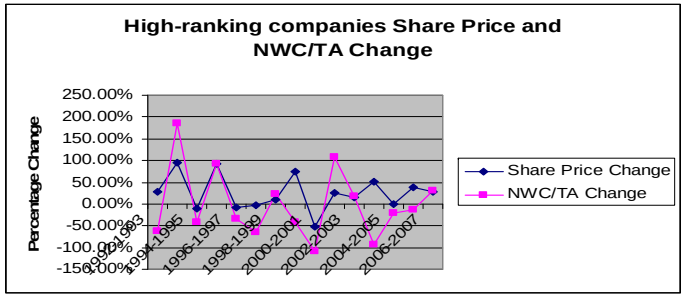




Chart 4.3: High-ranking Companies Share Price & the MetaCapitalism indices correlations

### 4.3.2 Mid-ranking subgroup

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (0,1) | period (-2,-1) |
| **TA** | 0.09 | -0.17 | 0.57 |
| **PP&E** | -0.14 | 0.12 | 0.48 |
| **NWC** | -0.06 | -0.12 | -0.12 |
| **PP&E/TA** | -0.32 | 0.24 | 0.04 |
| **NWC/TA** | -0.06 | -0.26 | -0.14 |
| **(NWC+PP&E)/TA** | 0.00 | 0.05 | 0.13 |

Table 4.4: Mid-ranking subgroup (average data) correlations

When the MetaCapitalism changes (-1, 0) were perceived in the stock market during the same period (-1, 0), most of the indices in this group demonstrated an insignificant correlation with the share price, while 4 of the 6 indices showed negative correlations, PP&E, PP&E/TA, NWC and NWC/TA (see table 4.4).

The share price experienced two glorious boosts during 1995-1996 and 1998-1999 when it soared by 1,000% and 1,950% respectively. However this trend did not last after 2000 so these companies were still ranked at medium level in the market, and PP&E and PP&E/TA demonstrated an overall upward trend. During 1999-2000 when PP&E increased by 376.72% and PP&E/TA increased by 57.35%, the share price dropped by 50.37%. It was doubtful whether the large investment in PP&E was likely to cause these fluctuations in the share price (see chart 4.4).

When change in the indices was perceived in the following period (0, 1) there was also a very weak correlation with the share price. However, there was an opposite direction shown that was similar to the high ranking group during the previous period (-1, 0) (see table 4.4), except for the NWC and NWC/TA.

The change in the share price during the previous period (-2, -1) had a greater comparative impact on the company's change of strategy, especially TA (0.57) and PP&E (0.48), which demonstrated a significant positive correlation with the share price change. From this perspective it can be seen that TA and PP&E are important factors for company performance in the stock market, as perceived by the mid-ranking companies (see table 4.4).

A correlation between changes in the MetaCapitalism indices (-1, 0) and share price during those three periods showed more consistency in the period (-2, -1) and (0, 1), which proved that the cognitive process was sequential. Alternatively a simultaneous result in the period (-1, 0) explains the manipulative function but alters the perception, as seen by PP&E and PP&E/TA. If they are perceived concurrently, they demonstrate a negative correlation with share price change. However, if they are perceived sequentially, they present a positive correlation with changes in the share price.

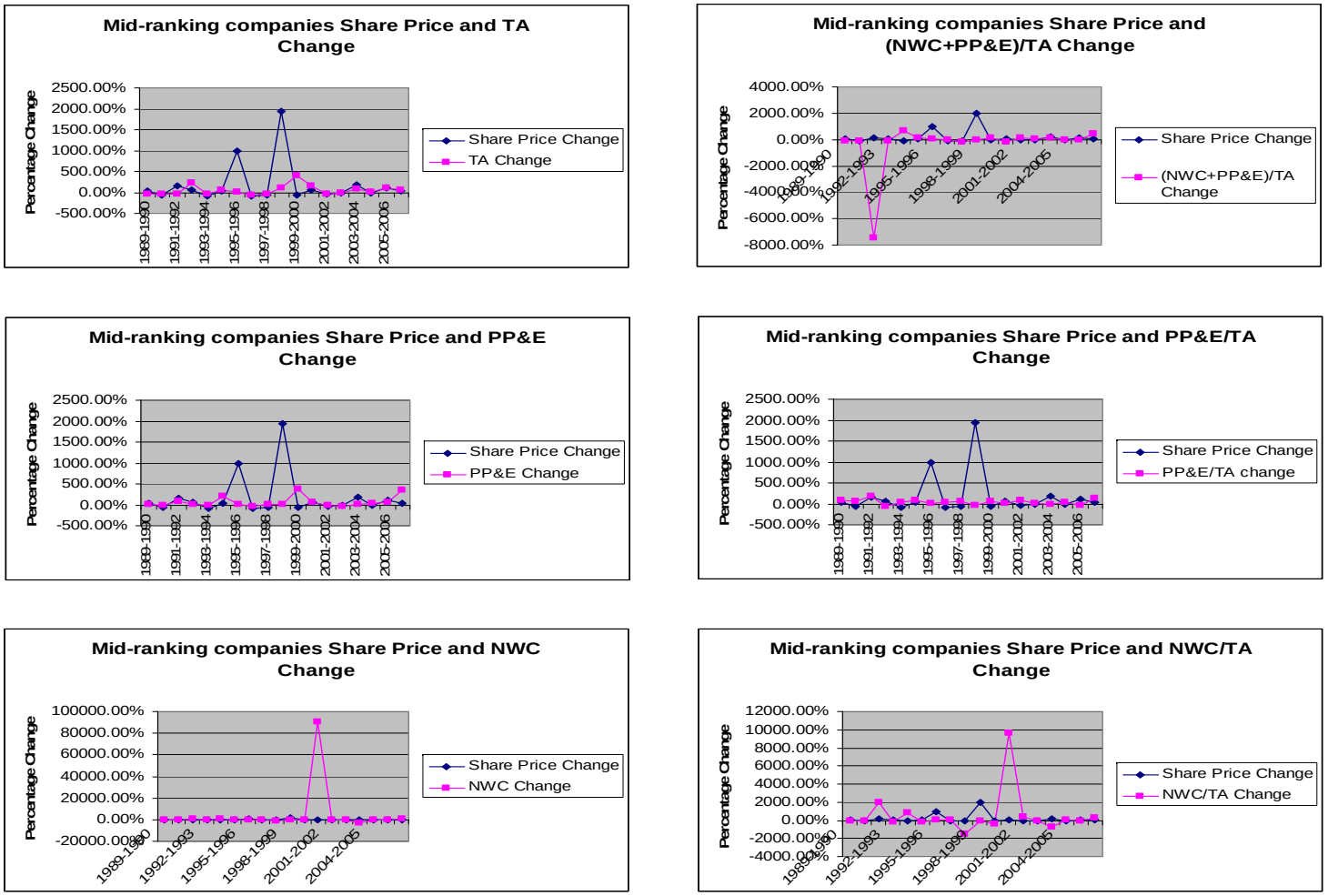



Chart 4.4: M id-ranking Companies Share Price & the MetaCapitalism indices correlations

### 4.3.3 Low-ranking subgroup

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (0,1) | period (-2,-1) |
| **TA** | 0.82 | -0.05 | 0.08 |
| **PP&E** | -0.06 | -0.14 | 0.49 |
| **NWC** | 0.07 | -0.31 | -0.46 |
| **PP&E/TA** | -0.54 | -0.02 | 0.44 |
| **NWC/TA** | 0.15 | -0.33 | -0.40 |
| **(NWC+PP&E)/TA** | 0.14 | -0.70 | 0.06 |

Table 4.5: Low-ranking subgroup (average data) correlations

Within the same period (-1, 0) the TA showed a very significant positive correlation (0.82) while the PP&E/TA demonstrated considerable negative correlation (-0.54) when the share price changed while other indices bore little significance in the correlation test with the share price change (see table 4.5).

The share price varied between -73.26% during 2000-2001 and 92.79% during 2006-2007. This movement was much aligned with TA. When the share price peaked in 2007 the TA increased by 272.09%. There was a moderate change in TA from 2000 to 2006, ranging from 16.39% to -11.4%. But in 2006-2007 there was a dramatic increase in TA by 272.09% (see Chart 4.5).

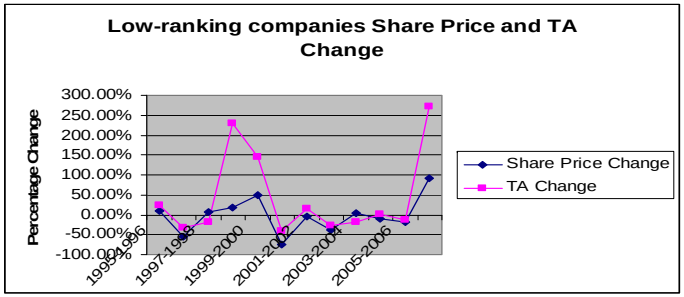
PP&E/TA was the other significant index that experienced dramatic fluctuations during the whole period but remained mostly for a positive change. Unlike TA, its movement was quite the opposite when the share priced bottomed in 2001, the PP&E/TA peaked at 387.13%. The NWC also experienced a large downward trend since 1996 (see Chart 4.5).

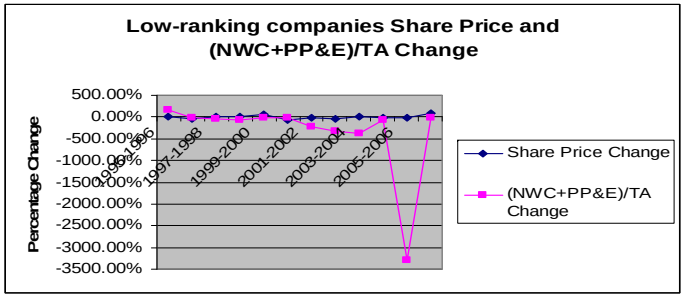
From the changes of TA, PP&E and NWC, it is interesting to notice that these low-ranking companies were increasing their PP&E base and decreasing the NWC base to maintain a relatively moderate change in total assets, similar to the high ranking group.

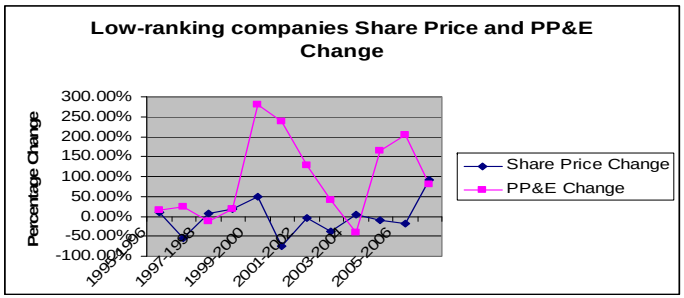
When the changes in the MetaCapitalism strategy during the following period (0, 1) are perceived then all the indices have a negative correlation with changes in the share price. Of the six indices, NWC, NWC/TA and especially (NWC+PP&E)/TA (0.7) were significant (see table 4.5), matched the assumption of the MetaCapitalism efficiency, and ideally explained the perceptive function of the stock market. However, the strengths of TA, PP&E and PP&E/TA are insignificant.

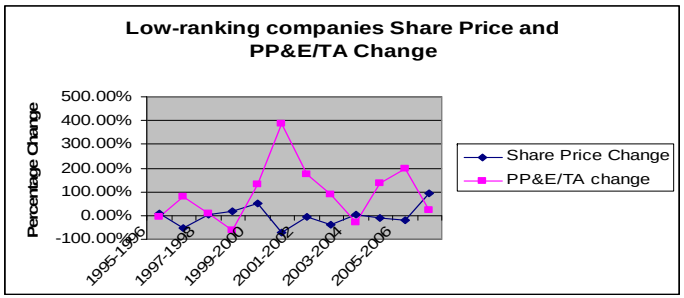
A comparison between changes in the share price (-2, -1) with the MetaCapitalism indices (-1, 0) revealed that the share price change negatively influenced change in NWC and NWC/TA while positively shaping changes in PP&E and PP&E/TA. The strength was fairly moderate, varying from 0.4 to 0.5 (see table 4.5). Alternatively the TA and (NWC+PP&E)/TA did not influence the MetaCapitalism strategy very much at all.

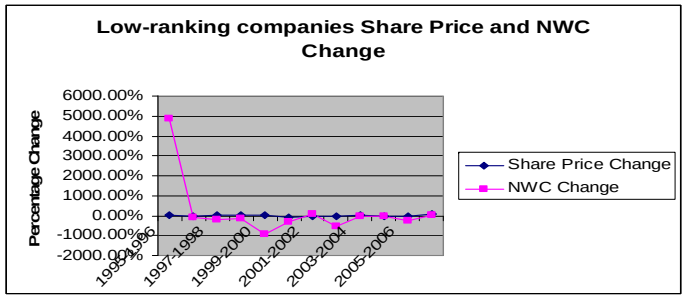
The results of the test the MetaCapitalism indices with share price change in (-2, -1) and (0, 1) showed different perceptions regarding PP&E and PP&E/TA. This may prove that except for the cognitive function, the market's manipulative function can be explained by testing the change in share price concurrently with change in the MetaCapitalism in the period (-1, 0).



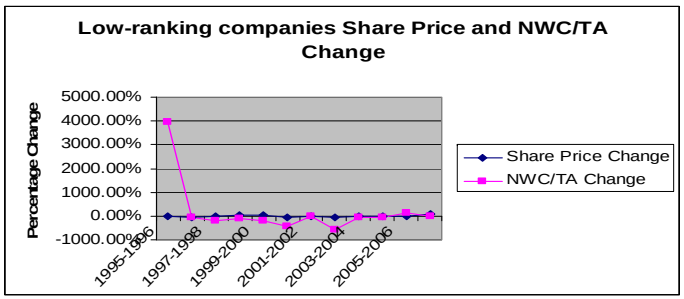




Chart 4.5: Low-ranking Companies Share Price & the MetaCapitalism indices correlations

### 4.3.4 Summary of listed subgroups

| Summary: listed group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (-1, 0) | | |
|---|---|---|
| | **Positive Correlation** | **Negative Correlation** |
| **Listed Group** | TA, NWC/TA | NWC, PP&E, PP&E/TA, (NWC+PP&E)/TA |
| **High-ranking subgroup** | NWC, TA, NWC/TA | PP&E, PP&E/TA, (NWC+PP&E)/TA |
| **Mid-ranking subgroup** | TA | PP&E, PP&E/TA |
| **Low-ranking subgroup** | TA, NWC/TA | PP&E, PP&E/TA |
| **Verdict** | ▪ PP&E and PP&E/TA are negatively correlated with share price; especially PP&E/TA shows considerable strength in all levels (e.g. -0.57 in high-ranking group).<br>▪ TA shows positive correction in all subgroups, especially significant in the low-ranking group (0.82).<br>▪ NWC and NWC/TA hold strong positive correlation especially in high-ranking group. | |

Table 4.6: Listed group and subgroups correlation analysis with share price change in period (-1, 0)

Table 4.6 shows the distinctive results of the empirical test for the indices of the MetaCapitalism efficiency and the share price in the same period (-1, 0). PP&E and PP&E/TA demonstrated the correlation of the assumption of the MetaCapitalism efficiency. However, the results of TA and NWC, NWC/TA disclose are opposite. It can also be seen that there is consistency in the results of the three sub-groups, high-ranking, mid-ranking and low-ranking.

| Summary: listed group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (0, 1) | | |
|---|---|---|
| | **Positive Correlation** | **Negative Correlation** |
| **Listed Group** | None | All except (NWC+PP&E)/TA |
| **High-ranking subgroup** | None | All and TA is significant |
| **Mid-ranking subgroup** | PP&E, PP&E/TA | TA, NWC, NWC/TA |
| **Low-ranking subgroup** | None | All, (NWC+PP&E)/TA significant |
| **Verdict** | ▪ No positive correlations are found in the listed group level and subgroup level (except the mid-ranking group).<br>▪ Most of the indices show negative correlations with the share price change. TA is significant in the high-ranking group (-0.5) and (NWC+PP&E)/TA is significant in the low-ranking group (-0.7).<br>▪ The trend shows evidence of the MetaCapitalism assumption in the following period, however, the correlations are not sufficient significant.<br>▪ This trend is quite opposite with the result in period (-1, 0), which shows positive correlation with TA and NWC/TA, and negative correlation with PP&E and PP&E/TA | |

Table 4.7: Listed group and subgroups correlation analysis with share price change in period (0, 1)

There was strong evidence for assuming the MetaCapitalism efficiency when testing the share price change in the following period (see table 4.7), although the result was the opposite of the test with the share price in the concurrent period (see table 4.6). These two periods represent the cognitive function and manipulative function of the stock market. The results reasonably explain the complexity of the stock market in perceiving the MetaCapitalism efficiency.

| Summary: listed group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (-2, -1) | | |
|---|---|---|
| | **Positive Correlation** | **Negative Correlation** |
| **Listed Group** | TA, PP&E, (NWC+PP&E)/TA | NWC/TA |
| **High-ranking subgroup** | PP&E, PP&E/TA | NWC, NWC/TA |
| **Mid-ranking subgroup** | TA, PP&E | NWC, NWC/TA |
| **Low-ranking subgroup** | PP&E, PP&E/TA | NWC, NWC/TA |
| **Verdict** | ▪ TA, PP&E and PP&E/TA are positively correlated with the share price change. Especially PP&E shows in all groups levels.<br>▪ NWC and NWC/TA are negatively correlated with the share price change, especially NWC/TA shows in all group levels.<br>▪ TA demonstrates same result as that tested with share price change in period (-1, 0), while NWC, NWC/TA, PP&E, PP&E/TA are opposite.<br>▪ Comparing the result of share price change in period (0, 1), there is consistency regarding NWC and NWC/TA, while opposite about TA and PP&E. | |

Table 4.8: Listed group and subgroups correlation analysis with share price change in period (-2, -1)

The result of testing the MetaCapitalism efficiency indices (-1, 0) with the previous share price (-2, -1) was opposite to that when tested simultaneously, except TA. The results in the following period were similar (0, 1) but with different PP&E and PP&E/TA.

It can be inferred that the manipulative function allowed the market to perceive the MetaCapitalism efficiency differently to the assumption proposed by the consulting firm.

## *4.4 Delisted Subgroups*

### 4.4.1 Failed subgroup

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.79 | -0.06 | 0.17 |
| **PP&E** | 0.12 | -0.13 | -0.20 |
| **NWC** | 0.03 | 0.29 | 0.21 |
| **PP&E/TA** | 0.26 | -0.17 | -0.24 |
| **NWC/TA** | 0.11 | 0.29 | 0.19 |
| **(NWC+PP&E)/TA** | 0.40 | 0.10 | -0.45 |

Table 4.9: Failed subgroup (average data) correlations

In the same period (-1, 0) the share price change in the failed group correlated with all the MetaCapitalism indices, especially TA (0.79). (NWC+PP&E)/TA was moderately significant (0.4) but the correlation of the other indices were insignificant (see table 4.9).

When the share price peaked at 743.44% in 1997-1998 the TA also peaked at 694.11%. The share prices fluctuated continuously, especially after 2000 where every rise was followed by a sharp drop (see chart 4.6). In particular, the increase in 2003-2004 was followed by two consecutive decreases until 2007 which may have been the signal that predicted these companies' failure.

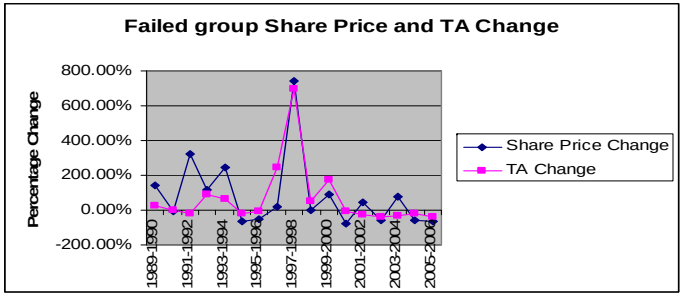
The movement of share price change was aligned with TA but it showed an overall negative change after 2000. Dramatic PP&E investment and PP&E/TA increase occurred during 1999-2000 at 2,065.27% and 1,821.84% respectively, accompanied by the share price rising by 87.86%. Small fluctuations of PP&E occurred after 2000 which varied from -50% to 50%. (NWC+PP&E)/TA was seen with two drastic decreases by 946.36% during 1996-1997 and 507.97% during 1999-2000 respectively, followed by

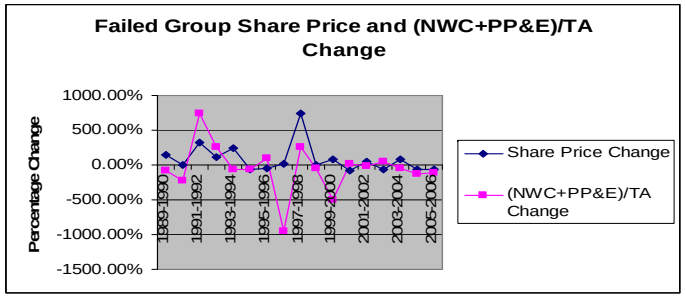
an overall downward trend after 2000. It was questionable whether not maintaining the level of TA and discontinuing investing in PP&E contributed to the failure of these companies (see chart 4.6). In such a case it would be fair to suggest that the MetaCapitalism efficiency harmed the company's success.

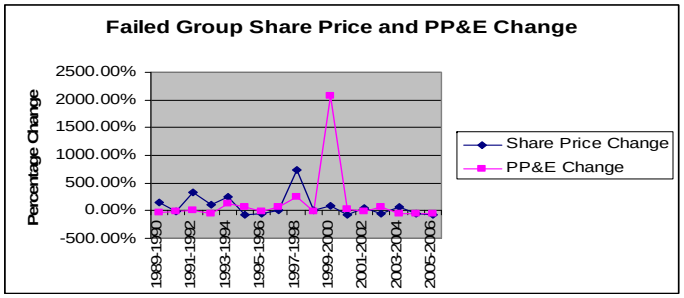
When the MetaCapitalism strategies are perceived in the following period (0, 1), then PP&E, PP&E/TA and (NWC+PP&E)/TA demonstrated negative correlations with the share price change, which is different from the results tested during the previous period (-1, 0). (NWC+PP&E)/TA showed similar strength but in a negative position. Other indices such as TA, NWC, NWC/TA still correlated the share price change but TA was much weaker compared to the test in the previous period (see table 4.9).

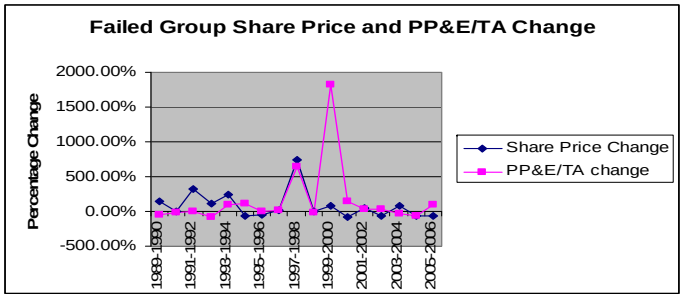
Considering the impact of the share price change in the previous period (-2, -1) on the company's MetaCapitalism business strategy, change in the share price can negatively influence their TA, PP&E and PP&E/TA strategy though not significantly (see table 4.9).

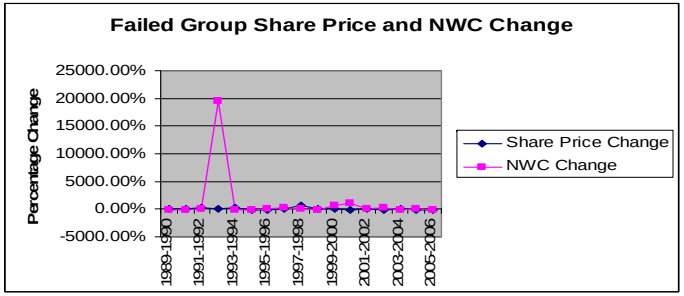
This test of the MetaCapitalism (-1, 0) indices with share price (-2, -1) was similar to that of the share price in the period (0, 1), which proved the sequential perception of the stock market in the cognitive process. It showed that the market has a positive perception on decreasing PP&E and PP&E/TA (negative correlation). But TA, NWC and NWC/TA are all positively correlated to the share price change. However, the manipulative function showed that the market perceived the MetaCapitalism efficiency (positive correlations) negatively and particularly sensitive to the movements of TA and (NWC+PP&E)/TA.



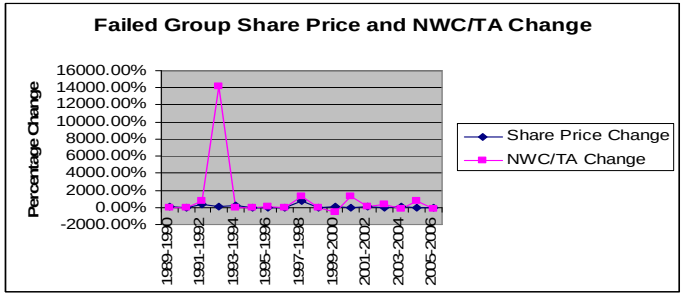




Chart 4.6: Failed Companies Share Price & the MetaCapitalism indices correlations

### 4.4.2 Acquired/Merged subgroup

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.91 | -0.08 | -0.17 |
| **PP&E** | -0.01 | 0.09 | -0.18 |
| **NWC** | -0.02 | 0.06 | 0.16 |
| **PP&E/TA** | -0.34 | -0.17 | -0.14 |
| **NWC/TA** | -0.09 | -0.07 | 0.17 |
| **(NWC+PP&E)/TA** | -0.12 | 0.07 | 0.12 |

Table 4.10: Acquired/Merged subgroup (average data) correlations

A comparison between the indices of the MetaCapitalism efficiency and the share price change in the same period (-1, 0) shows that TA had a positive correlation (0.91) with the share price while all the other indices had a negative correlation. However only PP&E/TA (-0.34) and (NWC+PP&E)/TA (-0.12) were of minor significance (see table 4.10). This result was quite different from the overall de-listed level (see table 4.9) where all indices showed positive correlations. The only similarity was that TA showed a very significant positive correlation at both levels.

The share price soared by 919.17% during 2003-2004, the year in which TA peaked at 5,564.37%, while PP&E/TA fell by 39.18%. However, this jump was only a flash because in other periods the share price decreased continually until 2007. During the same period PP&E/TA experienced an overall increase while NWC and NWC/TA increased enormously in 1995-96 at 25,810.08% and 1,870.09% respectively (see chart 4.7). Companies appeared to increase their physical assets and decrease their working capital base which meant they followed the MetaCapitalism strategy half way, although the results were unexpected.

When the MetaCapitalism changes were perceived in the following period (0, 1), NWC, NWC/TA and (NWC+PP&E)/TA have positive correlations with the share price change but they are very small (see table 4.10). By the same token there was almost no impact from the share price change on the company's MetaCapitalism business strategy because the correlations are insignificant (see table 4.10).

The results of the acquired/merged group were inconsistent with the overall de-listed level. And there were also similar characteristics with the listed group, especially PP&E/TA where they both had negative correlations with the share price change. This may explain why they were either acquired or merged into other companies rather solve the solvency problems, which was the main reason why other companies failed.

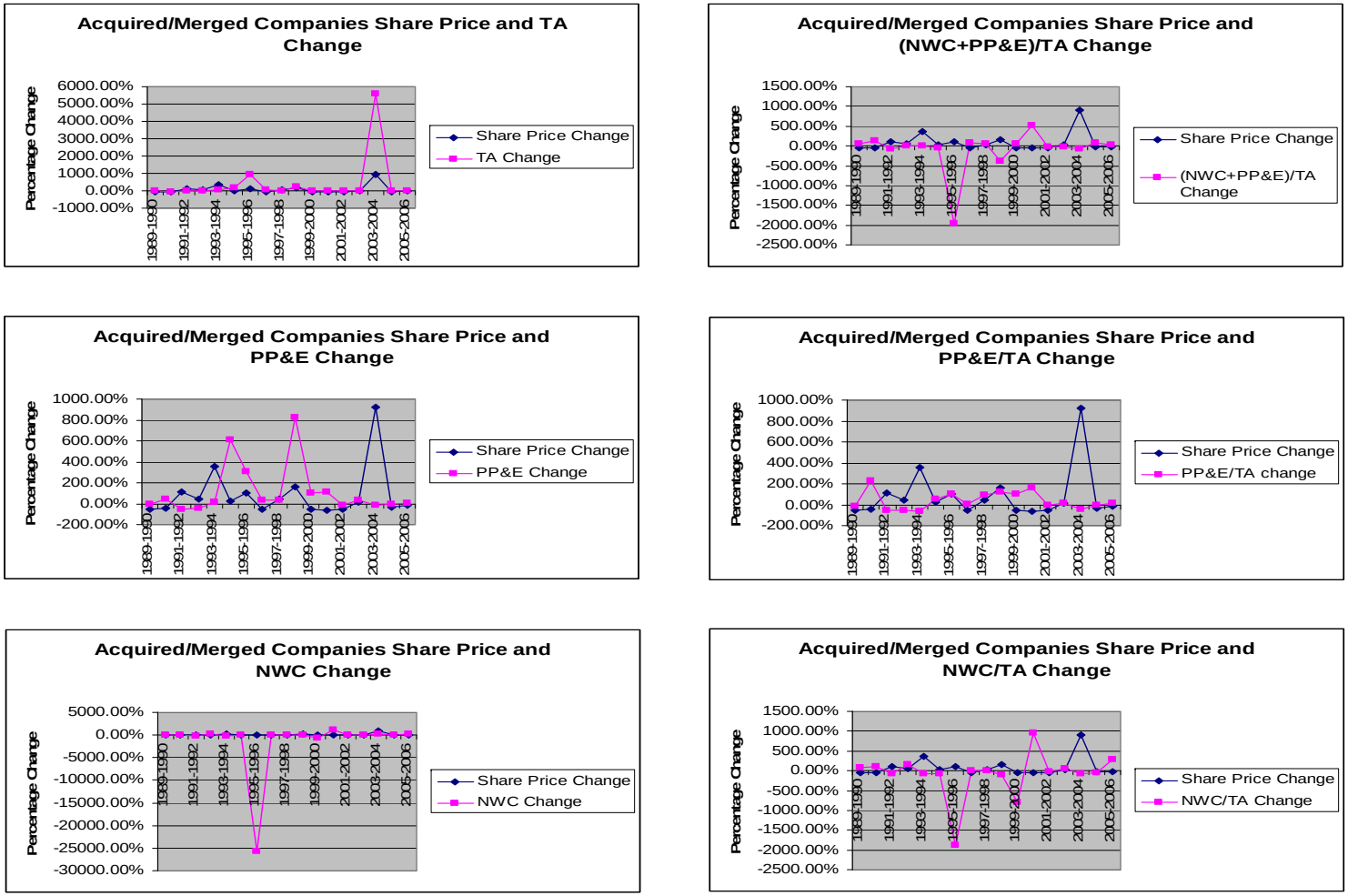



Chart 4.7: Acquired/Merged Companies Share Price & the MetaCapitalism indices correlations

### 4.4.3 Summary of delisted subgroups

| Summary: Delisted group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (-1, 0) | | |
|---|---|---|
| | **Positive correlation** | **Negative correlation** |
| **Delisted Group** | All except PP&E, but significant with TA, (NWC+PP&E)/TA | PP&E but not significant |
| **Failed subgroup** | All positive but NWC not significant | |
| **Acquired / Merged subgroup** | TA | PP&E/TA |
| **Verdict** | ▪ TA shows positive correlation with the share price in all levels.<br>▪ The indices in the failed group show all positive correlations with share price.<br>▪ On the contrary, only TA shows positive correlation in the acquired/ merged group. And this group show some similarity with the listed group esp. with PP&E/TA. | |

Table 4.11: Delisted group and subgroups correlation analysis with share price change in period (-1, 0)

TA presented a strong positive correlation with the share price change in all the level tests in the de-listed group. The failed sub-group was more consistent with the upper level test while the acquired/merged group demonstrated some discrepancies.

The results are opposite to the assumption of the MetaCapitalism efficiency. The manipulative function of the stock market seemed to perceive the signal in a different way for the failed companies, which is of interest for further investigation.

| Summary: Delisted group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (0, 1) | | |
|---|---|---|
| | **Positive correlation** | **Negative correlation** |
| **Delisted Group** | NWC, NWC/TA | TA, PP&E, PP&E/TA |
| **Failed subgroup** | TA, NWC, NWC/TA | PP&E, PP&E/TA, (NWC+PP&E)/TA |
| **Acquired / Merged subgroup** | NWC, NWC/TA | TA, PP&E, PP&E/TA |
| **Verdict** | ▪ NWC and NWC/TA play positive correlations with the share price change in all levels.<br>▪ PP&E and PP&E/TA show negative correlations with the share price change in all levels.<br>▪ There is controversial result regarding TA and (NWC+PP&E)/TA. | |

Table 4.12: Delisted group and subgroups correlation analysis with share price change in period (0, 1)

When testing the MetaCapitalism efficiency (-1, 0) with the share price change in the following period (0, 1), the results were similar to the test on the listed sub-group with share price change in the period (-1, 0) (see table 4.6). In both tests NWC and NWC/TA demonstrated positive correlations with the share price change while PP&E and PP&E/TA presented negative correlations. The main difference was TA which was blurred in the de-listed group.

It can be inferred that the market manipulative function and cognitive function were correlated, as the evidence above shows.

| Summary: Delisted group and subgroups comparison<br>MetaCapitalism (-1, 0), share price (-2, -1) | | |
|---|---|---|
| | **Positive correlation** | **Negative correlation** |
| **Delisted Group** | | TA, PP&E/TA |
| **Failed subgroup** | NWC, NWC/TA | PP&E, PP&E/TA |
| **Acquired / Merged subgroup** | | PP&E/TA |
| **Verdict** | ▪ Share price change in the previous period negatively affects the companies' strategy on PP&E/TA.<br>▪ NWC and NWC/TA hold positive correlations with the share price change in the failed subgroup.<br>▪ The impacts on other indices are not significant.<br>▪ The result has more consistency with the test of share price change in period (0, 1). | |

Table 4.13: De-listed group and sub-groups correlation analysis with share price change in period (-2, -1)

There was a consistency in the correlation test with the share price change in (-2, -1) and that in (0, 1). This important evidence illustrates the cognitive function of the stock market in perceiving new facts and processes.

The result was opposite with the listed sub-group testing (see table 4.8). Why there were different perceptions from the stock market regarding listed and de-listed companies is a topic of further interest.

## *4.5 MetaCapitalism indices summary in subgroup level*



| **MetaCapitalism Indices** | **Positive correlation with SP "-"** | **Negative correlation with SP "+"** | **Comparison of correlations in different groups** |
|---|---|---|---|
| NWC | high-ranking group (listed) | | |
| PP&E | | listed group | |
| TA | all groups | | same for all groups |
| NWC/TA | high-ranking group | | |
| PP&E/TA | failed group (delisted) | listed group and acquired/merged group (delisted) | opposite direction with the worst performed group and the listed group. |
| (NWC+PP&E)/TA | failed group (delisted) | high-ranking group | opposite direction with the best performed and the worst performed companies |
| Verdict | ▪ TA holds positive correlation with share price in all groups, and it is extremely strong (0.79) in the delisted groups.<br>▪ PP&E and PP&E/TA hold significant negative correlation in all subgroups except for the failed subgroup. PP&E/TA is of even stronger strength.<br>▪ NWC (0.78) and NWC/TA (0.60) hold strong positive correlation with share price in the high-ranking group.<br>▪ For (NWC+PP&E)/TA, there is also opposite direction between the best performed group and the worst performed group. However, this index is of the weakest significance of the six.<br>▪ The best performed companies in the high-ranking group show distinctive difference in the correlation rest which is of more concern. | | |

Table 4.14: The MetaCapitalism indices with share price change correlations summary in subgroup level

MetaCapitalism (-1, 0), SP (-1, 0)

| MetaCapitalism Indices | Positive correlation with SP "-" | Negative correlation with SP "+" | Comparison of correlations in different groups |
|---|---|---|---|
| NWC | failed & acquired/merged groups (delisted) | high-ranking, mid-ranking and low-ranking groups (listed) | opposite direction for listed and delisted companies |
| PP&E | | Failed and acquired/merged groups (delisted) | more significant for delisted companies |
| TA | | high-ranking and mid-ranking groups (listed) | |
| NWC/TA | failed and acquired/merged group (delisted) | high-ranking, mid-ranking and low-ranking groups (listed) | opposite for listed and delisted companies |
| PP&E/TA | mid-ranking group | failed and acquired/merged groups (delisted) | |
| (NWC+PP&E)/TA | | high-ranking and low-ranking groups (listed) | |
| Verdict | ▪ Regarding NWC and NWC/TA, they are positively reflected by the share price change in the delisted subgroups, while negatived reflected in the listed subgroups in the following period.<br>▪ Regarding PP&E and PP&E/TA, they are negatively reflected by the share price change in the delisted subgroups. The correlations with the listed subgroups are not significant.<br>▪ TA is negatively reflected in the high to middle ranking subgroups.<br>▪ (NWC+PP&E)/TA has negative correlation in high-ranking and low-ranking subgroups. | | |

Table 4.15: The MetaCapitalism indices with share price change correlations summary in subgroup level MetaCapitalism (-1, 0), SP (-2, -1)

| MetaCapitalism Indices | Positive correlation with SP "-" | Negative correlation with SP "+" | Comparison |
|---|---|---|---|
| NWC | failed companies | high-ranking, mid-ranking and low-ranking | Opposite for listed and delisted |
| PP&E | High-ranking, Mid-ranking, Low-ranking | Failed | Opposite for listed and delisted |
| TA | Mid-ranking | | |
| NWC/TA | Failed | High-ranking, Mid-ranking, Low-ranking | Opposite for listed and delisted |
| PP&E/TA | High-ranking, Low-ranking | Failed, Acquired/Merged | Opposite for listed and delisted |
| (NWC+PP&E)/TA | | | |
| Verdict | ▪ Regarding NWC and NWC/TA, the share price change in the previous period has positive correlations with the failed companies, while negatively correlated with the listed companies.<br>▪ Regarding PP&E and PP&E/TA, the share price change in the previous period has positive correlations with most of the listed subgroups, while negatively correlated with the failed companied.<br>▪ For TA and (NWC+PP&E)/TA, the correlations are not significant. | | |

Table 4.16: The MetaCapitalism indices with share price change correlations summary in subgroup level MetaCapitalism (-1, 0), SP (0, 1)

## *4.6 Individual companies*

| Co. | Descreption | NWC | PP&E | TA | NWC/TA | PP&E/TA | (NWC+PP&E) /TA |
|---|---|---|---|---|---|---|---|
| TLS | high-ranking | 0.65 | -0.75 | -0.12 | 0.71 | -0.75 | -0.76 |
| SGT | high-ranking | 0.13 | -0.93 | 0.24 | 0.10 | -0.82 | -0.58 |
| **High-ranking** | | **0.78** | **-0.55** | **0.49** | **0.60** | **-0.57** | **-0.19** |
| TeleIP | mid-ranking | 0.18 | -0.18 | 0.71 | 0.02 | -0.38 | -0.18 |
| **Mid-ranking** | | **-0.06** | **-0.14** | **0.09** | **-0.06** | **-0.32** | **0.00** |
| ICC | | 0.28 | 0.44 | 0.60 | 0.45 | 0.36 | -0.51 |
| **Low-ranking** | | **0.07** | **-0.06** | **0.82** | **0.15** | **-0.54** | **0.14** |
| BBB | acquired | -0.02 | 0.24 | 0.99 | -0.07 | -0.69 | -0.42 |
| PWT | merged | -0.05 | -0.04 | -0.01 | -0.10 | -0.14 | -0.07 |
| **Acquired/Merged** | | **-0.02** | **-0.01** | **0.91** | **-0.09** | **-0.34** | **-0.12** |
| IPW | failed | -0.83 | -0.31 | 0.86 | 0.24 | -0.31 | 0.34 |
| CCO | suspended | -0.07 | 0.42 | 0.30 | -0.15 | 0.11 | -0.14 |
| **Failed** | | **0.03** | **0.12** | **0.79** | **0.11** | **0.26** | **0.40** |

Table 4.17: Individual company correlation with the share price change in period (-1, 0)

### *4.6.1 High-ranking companies*

#### 4.6.1.1 Telstra Company (High-ranking)

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | -0.12 | 0.14 | -0.51 |
| **PP&E** | -0.75 | 0.90 | -0.07 |
| **NWC** | 0.65 | -0.50 | -0.36 |
| **PP&E/TA** | -0.75 | 0.90 | 0.15 |
| **NWC/TA** | 0.71 | -0.55 | -0.36 |
| **(NWC+PP&E)/TA** | -0.76 | 0.93 | -0.06 |

Table 4.18: Telstra Corporations Limited (average data) correlations

Telstra has remained the No.1 telecom operator by revenue in the Australian market since it was listed on the ASX in 1993.

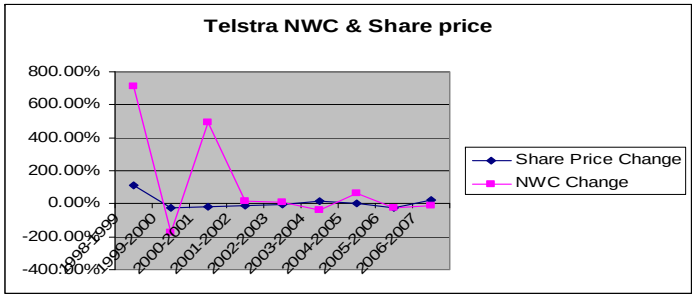
Within the same period PP&E, PP&E/TA and (NWC+PP&E)/TA demonstrated significant negative correlations with the share price change at (-0.75), (-0.75) and (-0.76) respectively. On the other hand NWC and NWC/TA presented positive correlations with the share price change at 0.65 and 0.71 respectively. The strength of TA was insignificant and negative (see table 4.18).

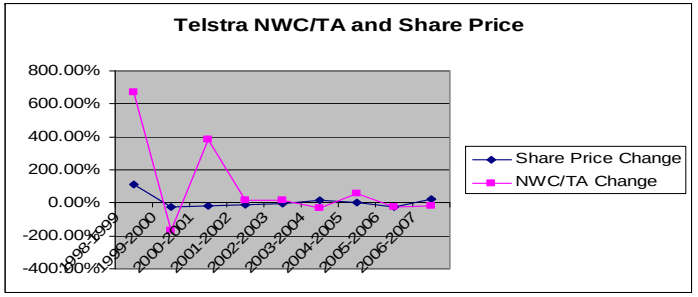
The six MetaCapitalism indices experienced dramatic ups and downs during the whole period. The share price experienced a significant increase in 1998-99 at 109.81% followed by a sharp negative change at -21.71% during the next period. It was accompanied by opposite changes in PP&E and PP&E/TA while aligned with changes in NWC and NWC/TA. Both the share price and six indices experienced smooth movement after 2001. For example, PP&E moved from 4% to 8% and TA fluctuated from -6% to 5%. By comparison NWC and NWC/TA moved much more fiercely from -10% to 70% (See Chart 8).

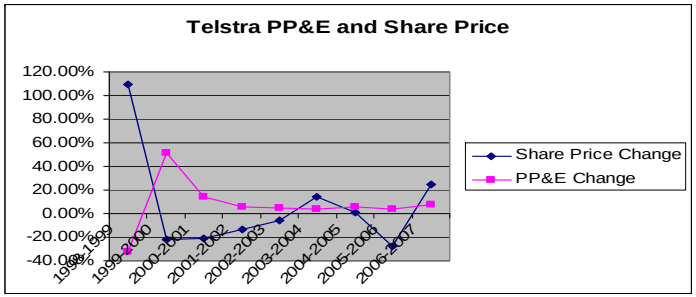
When the MetaCapitalism efficiency indices were perceived in the following period, TA demonstrated a stronger correlation at -0.50. NWC and NWC showed negative correlations at -0.36. When considering the changes in the MetaCapitalism indices and the share price change in the previous period (-1, 0), the results were completely opposite. The share price showed significant positive correlations with PP&E (0.9), PP&E/TA (0.9) and (NWC+PP&E)/TA (0.93), while negatively correlated with NWC (-0.5) and NWC/TA (-0.55) (see table 4.18).

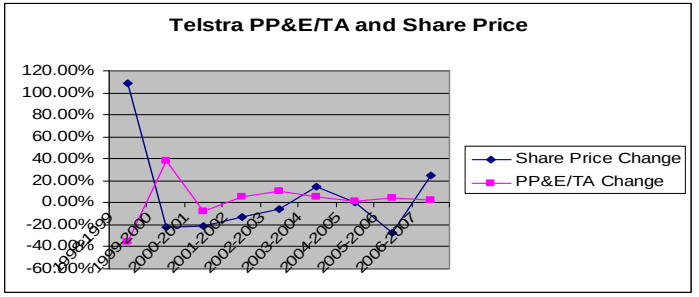
A comparison between changes in the MetaCapitalism indices and share price in the three periods showed that there was more consistency for the test with share price in

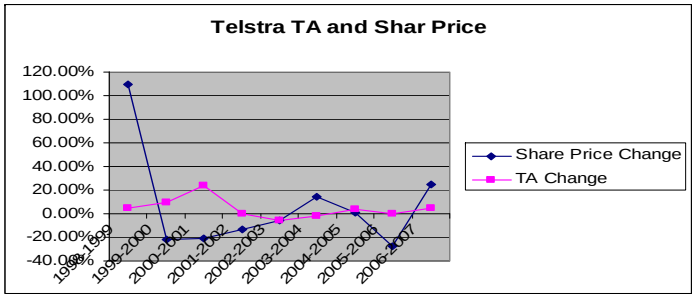
period (-2, -1) and (0, 1), a large difference with the share price changes between (-2, -1) and (-1, 0). These are imperative evidence showing the reflexivity of the stock market. For example, within its cognitive function the stock market has a positive reflection on decapitalisation of NWC but during its manipulative process the results are opposite (see table 4.18).



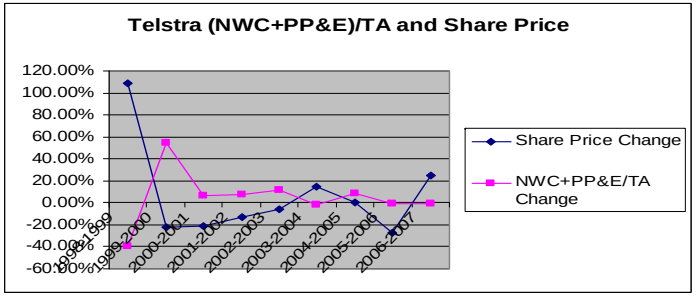




Chart 4.8: Telstra Share Price & the MetaCapitalism indices correlations

4.6.1.2 Singapore Corporations Limited (High-ranking)

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.24 | 0.11 | -0.52 |
| **PP&E** | -0.93 | 0.82 | 0.97 |
| **NWC** | 0.13 | -0.30 | 0.16 |
| **PP&E/TA** | -0.82 | 0.49 | 0.94 |
| **NWC/TA** | 0.10 | -0.30 | 0.35 |
| **(NWC+PP&E)/TA** | -0.58 | -0.08 | 0.97 |

Table 4.18: Singapore Corporations Limited (average data) correlations

Another example was Singapore Telecommunications Limited, known as Optus. Optus has kept its second position in the market since it was listed in 1999.

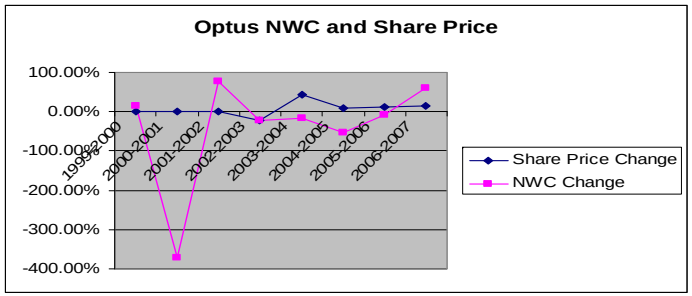
When the share price change was considered in the same period as the MetaCapitalism changes, three significant negative correlations showed up in PP&E (-0.93), PP&E/TA (-0.82) and (NWC+PP&E)/TA (-0.58). The other three indices demonstrated positive correlations with the share price change but they were not significant.

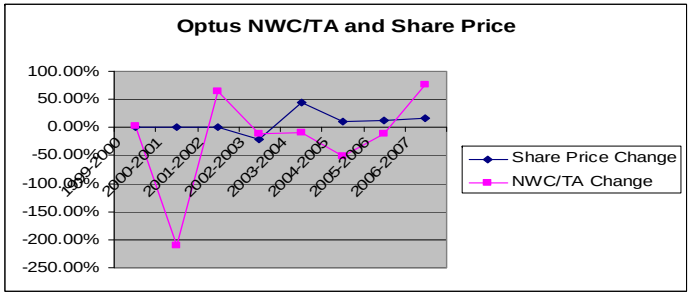
When the MetaCaptialism efficiency was perceived by the share price change in the following period (0, 1), TA demonstrated a significant negative correlation at -0.52. All the other indices presented positive correlations with the share price change. Of them PP&E (0.97), PP&E/TA (0.94) and (NWC+PP&E)/TA (0.97) are the most significance. Apart from NWC and NWC/TA, the results are opposite to those testing share price changes in the previous period (-1, 0).

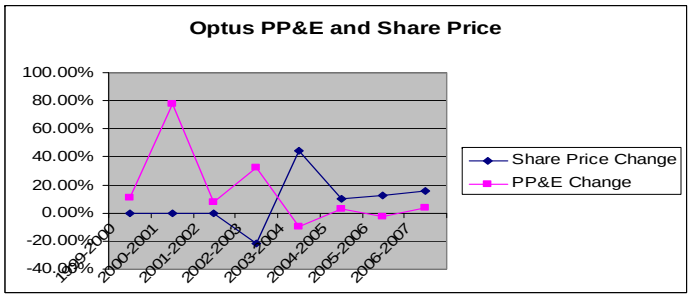
The share price change during the period (-2, -1) showed a positive correlation with PP&E (0.82), PP&E/TA (0.49) over the same test period (0, 1), and a negative correlation with NWC (-0.3) and NWC/TA (0.3).

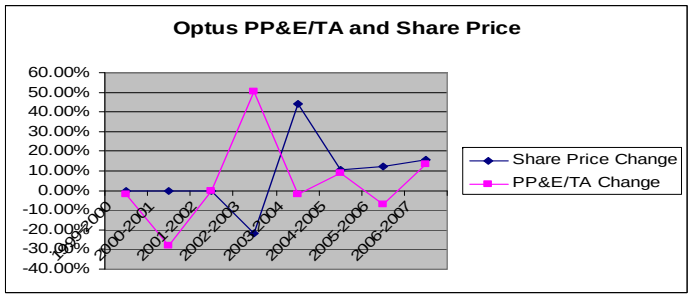
The results proved the different perceptions by the cognitive function and manipulative function in the stock market.

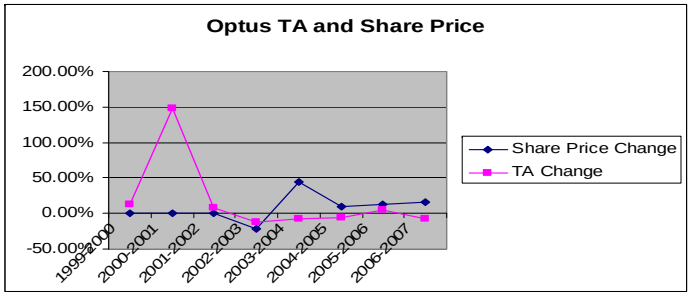
The two examples of Telstra and Optus may indicate that controlling the level of PP&E and PP&E/TA is vital for the companies with considerable scale. Telstra and Optus benefited by decreasing their PP&E, PP&E/TA base while maintaining certain level of NWC and NWC/TA. It would be an interesting contribution to review the MetaCapitalism efficiency assumption. Moreover, TA was not very significant.



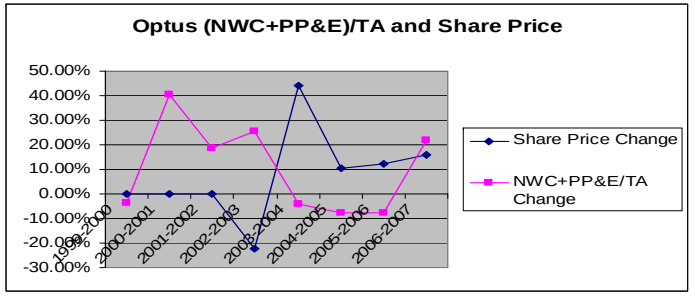




Chart 4.9: Optus Share Price & the MetaCapitalism indices correlations

### *4.6.2 Failed companies*

Unlike high ranking companies, IP World Limited and CircleCom Limited in the failed sub-group told different stories regarding the correlation of the MetaCapitalism efficiency and share price change.

#### 4.6.2.1 IP World Limited (Failed)

| **MetaCapitalism Indices** | **Share Price** | **Share Price** | **Share Price** |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.86 | -0.11 | 0.00 |
| **PP&E** | -0.31 | -0.36 | -0.70 |
| **NWC** | -0.83 | 0.09 | 0.45 |
| **PP&E/TA** | -0.31 | -0.36 | -0.70 |
| **NWC/TA** | 0.24 | 0.22 | 0.16 |
| **(NWC+PP&E)/TA** | 0.34 | 0.34 | -0.40 |

Table 4.19: IP World Limited (average data) correlations

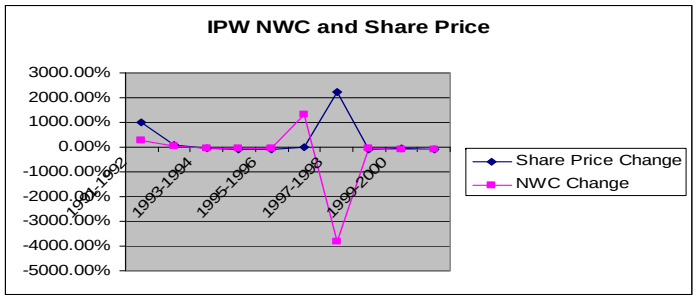
The history of IP World can be retrieved to 1990 when it ranked as No. 2 of the 5 companies. In 1999 its revenue still ranked as the No.8 of the total 29 listed companies, however, the next year its sales dropped dramatically until it was de-listed in 2003.

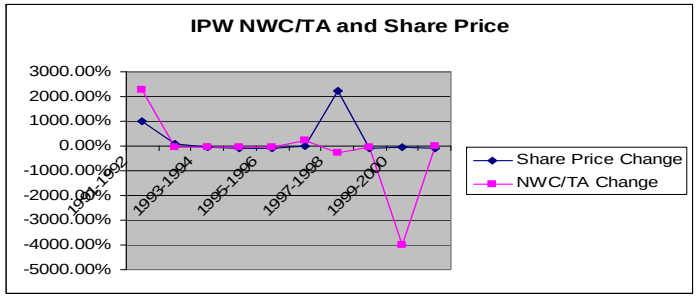
Looking at changes in the MetaCapitalism indices and the share price change in the same period (-1, 0), there were three negative correlations in NWC (-0.83), PP&E (-0.31) and PP&E/TA (-0.31) and three positive correlations in TA (0.86), NWC/TA (0.24) and (NWC+PP&E)/TA (0.34). This result did not comply with the overall failed sub-group which had a positive correlation in PP&E and PP&E/TA (see table 4.9).

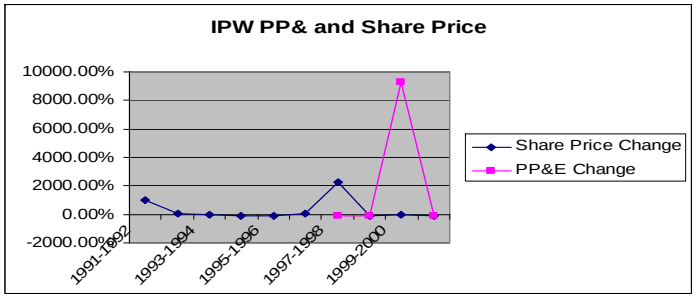
The movement of NWC showed an overall downward trend especially when it decreased by 3,802.88% during 1997-98 when share price jumped by 2,233.33%. It can be seen that IP World benefited greatly in the early period of the MetaCapitalism. However the share price kept dropping down with a decrease of NWC until it was de-listed. It also showed that the company decreased its TA, NWC/TA and (NWC+PP&E)/TA significantly during 1999-2000 by 99.74%, 4001.78% and 3637.63% respectively (See Chart 9).

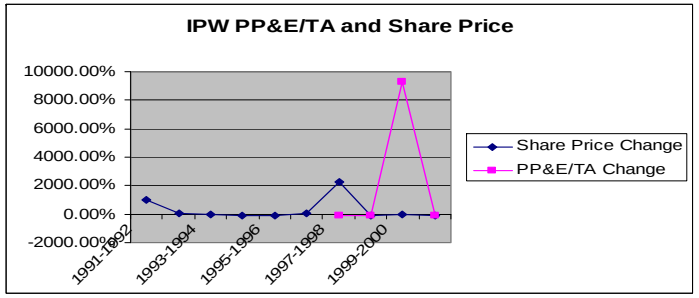
When the MetaCapitalism efficiency was perceived in the following period (0, 1), the strength of PP&E and PP&E/TA increased from 0.31 to 0.7 negatively. Oppositely, NWC demonstrated a positive correlation (0.45). Considering the share price change in the period (-2, -1), also demonstrated a negative correlation with PP&E (-0.36) and PP&E/TA (-0.36). This was consistent with the test of share price in the other two periods.

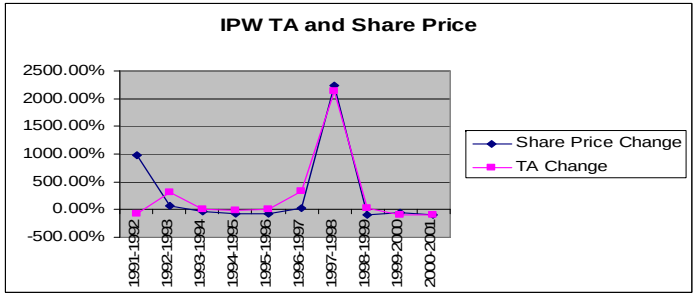
IP World was a unique case that presented some consistency regarding the cognitive function and manipulative function of the stock market. It was questionable whether largely decapitalising their net working capital was the reason for the company's failure.



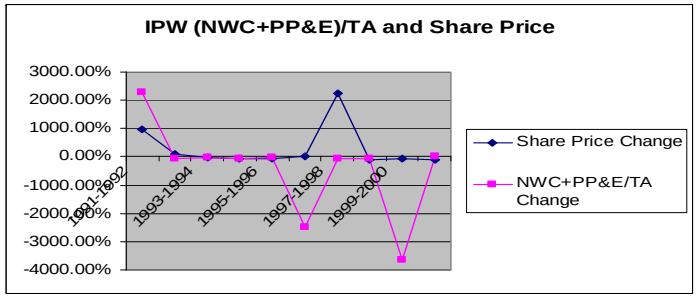




Chart 4.10: IP World Share Price & the MetaCapitalism indices correlations

4.6.2.2 CircleCom Limited (Failed)

| MetaCapitalism Indices | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.30 | -0.15 | -0.37 |
| **PP&E** | 0.42 | -0.08 | -0.25 |
| **NWC** | -0.07 | -0.08 | -0.23 |
| **PP&E/TA** | 0.11 | 0.08 | -0.40 |
| **NWC/TA** | -0.15 | -0.05 | -0.07 |
| **(NWC+PP&E)/TA** | -0.14 | 0.07 | -0.73 |

Table 4.20: CircleCom Limited (average data) correlations

CircleCom Limited ranked as No.1 in 1990 but dropped sharply after 1993 and was de-listed in 2005.

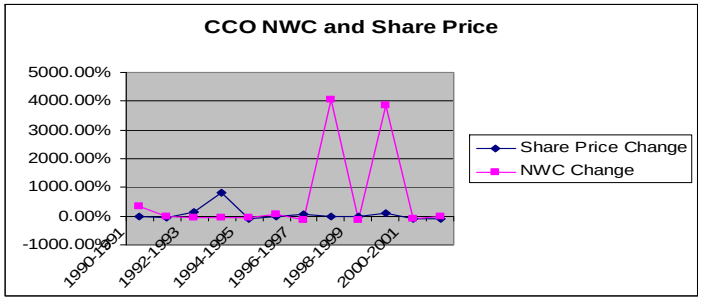
Within the same period (-1, 0), the share price change presented a positive correlation with TA (0.3), PP&E (0.42) and PP&E/TA. The other indices demonstrated a negative correlation with the share price change, however it was not significant.

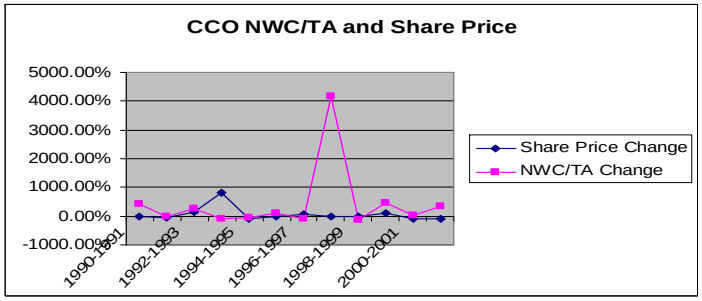
The share price movement was aligned with change in TA, which experienced several sharp fluctuations. There was a dramatic increase of 800% during 1992-93 accompanied with an increase of 178.16%. Generally, every jump was accompanied by a sharper decrease over the following period which greatly affected the fluctuations of share price.

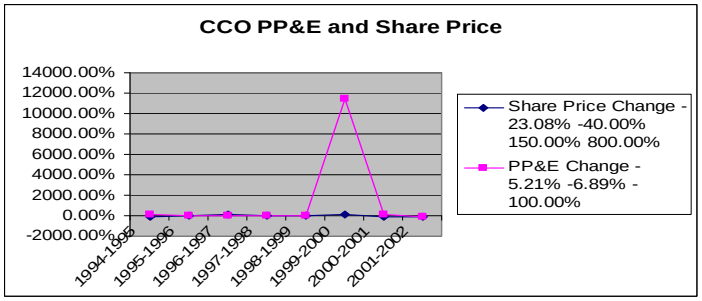
When the MetaCapitalism efficiency are perceived in the stock market in the following period (0, 1), then all the indices have a negative correlation with the share price change. (NWC+PP&E)/TA has the greatest significance (-0.7).

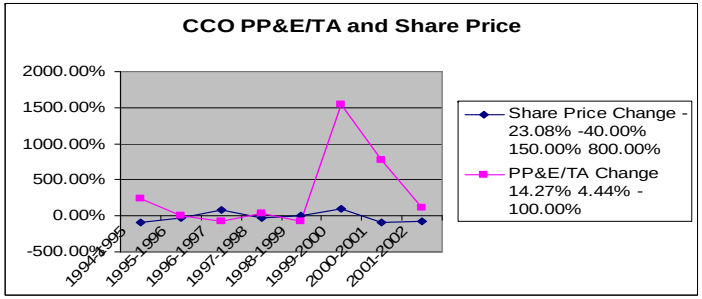
The impact of change in the share price in the period (-2, -1) was less significant than the test over the three periods.

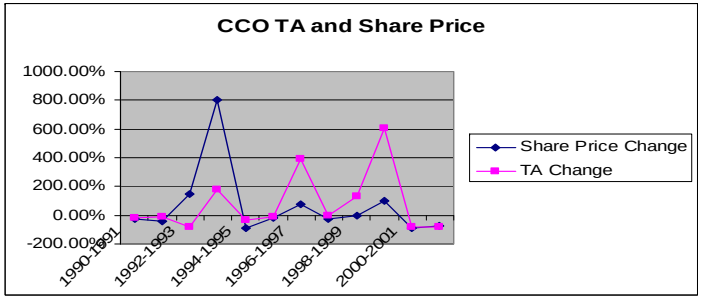
The examples of IP World Limited and CircleCom Limited indicated that the levels of TA and NWC were vitally important to these failed companies. This supports the conclusion that excessive downsizing of necessary NWC and TA and not maintaining certain levels of NWC/TA and (NWC+PP&E)/TA may contribute to failure over the long term.



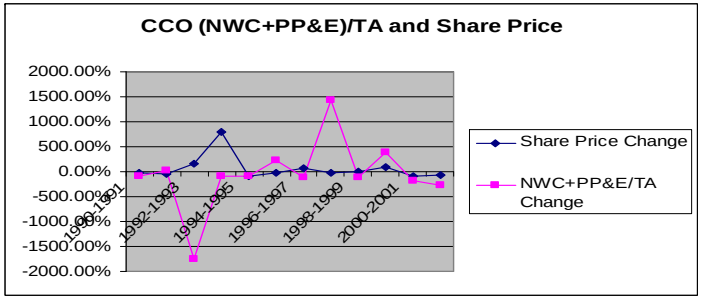




Chart 4.11: CircleCom Limited Share Price & the MetaCapitalism indices correlations

*4.7 Listed companies with cumulative data*

| | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.13 | 0.43 | -0.22 |
| **PP&E** | -0.20 | 0.22 | -0.10 |
| **NWC** | -0.13 | -0.09 | -0.14 |
| **PP&E/TA** | -0.23 | -0.13 | -0.12 |
| **NWC/TA** | 0.13 | -0.24 | -0.26 |
| **(NWC+PP&E)/TA** | -0.23 | 0.29 | 0.02 |

Table 4.21: Listed group (cumulative data) correlations

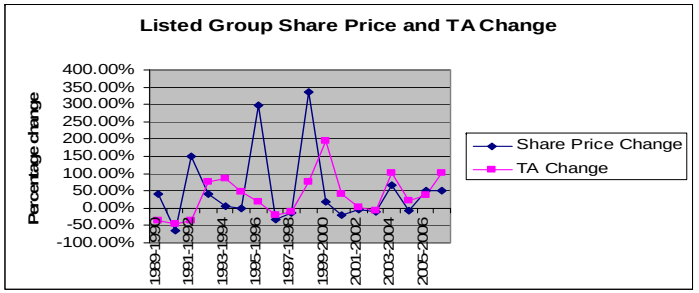
The Australian telecom companies listed within the same period (-1, 0) showed a negative correlation with PP&E, NWC, PP&E/TA and (NWC+PP&E)/TA when the share price changed, held a positive correlation of TA and NWC/TA, although all the results were insignificant (see table 4.21).

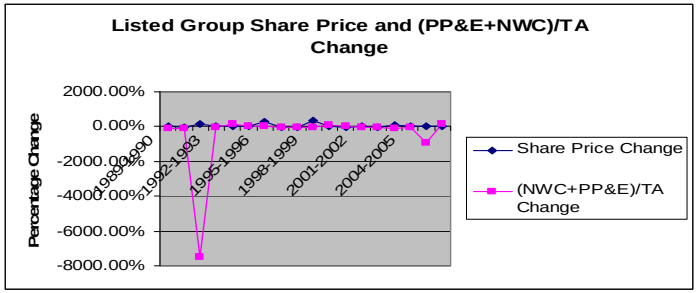
The cumulative changes of the MetaCapitalism indices increased during 1989 to 2007 as TA increased by 100.53%, PP&E increased by 151.53%, NWC grew by 210.10%, PP&E/TA grew by 46.9%, NWC/TA jumped by 130.37% and (NWC+PP&E)/TA jumped by 156.56%. Meanwhile the share price grew cumulatively by 49.54%. This cumulative change in PP&E/TA was more aligned with a changing share price. All the indices experienced fluctuations during the whole 18 year period while NWC and NWC/TA show more dramatic ups and downs. For example, NWC and NWC/TA surged by 25,697% and 2,581.49% in 2001 (see chart 4.10).

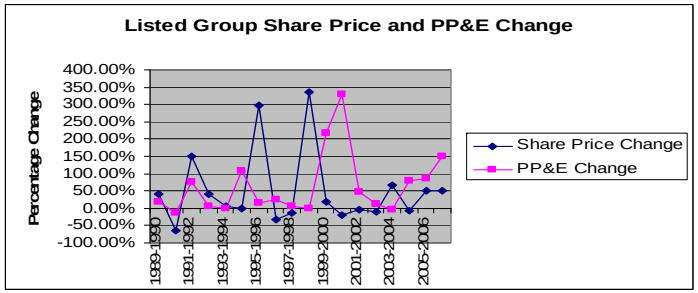
Looking at the impact of the MetaCapitalism strategy during the following period (0, 1), the share price showed all negative correlations except for (NWC+PP&E)/TA which indicated almost no relationship to the share price change (see table 4.21).

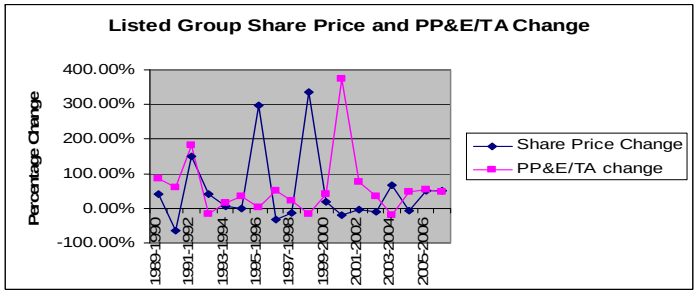
The share price change in period (-2, -1) showed a positive impact on TA, PP&E, and (NWC+PP&E)/TA, whereas it correlated negatively with PP&E/TA, NWC/TA. Of them, only TA demonstrated some significance (0.43) (see table 4.21).

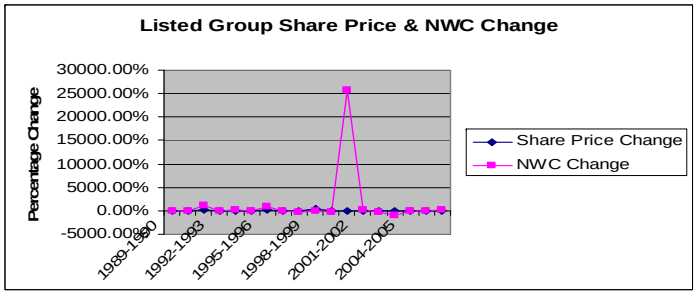
The above analysis showed that the stock market has a relatively negative perception on physical capital in the listed group, while performance on the stock market signalled to the company to increase its working capital basis, evidenced from the change of NWC and NWC/TA.



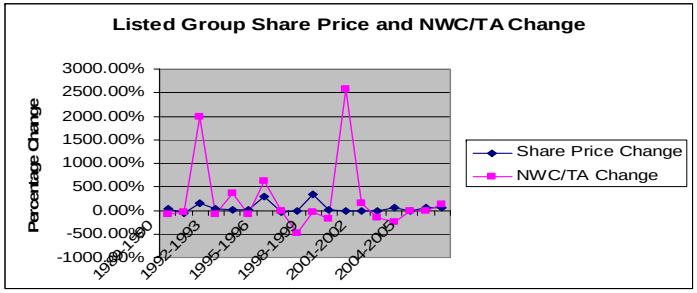




Chart 4.12: Listed companies Share Price & the MetaCapitalism indices correlations

*4.8 Delisted companies with cumulative data*

| | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.63 | -0.22 | -0.22 |
| **PP&E** | -0.06 | 0.08 | -0.26 |
| **NWC** | 0.06 | 0.28 | 0.32 |
| **PP&E/TA** | 0.06 | -0.11 | -0.25 |
| **NWC/TA** | 0.03 | 0.23 | 0.32 |
| **(NWC+PP&E)/TA** | 0.29 | 0.03 | -0.09 |

Table 4.22: Delisted group (cumulative) correlations

Within the same period (-1, 0) changes in the share price of de-listed Australian telecom companies demonstrated a significant positive correlation with change in TA (0.63), a less significant positive correlation with change in (NWC+PP&E)/TA, and an insignificant correlation with other indices (see table 4.22).

During the period from 1989 to 2006, the share price of the de-listed group dropped by 34.65% while TA descended by 21.57%, PP&E decreased by 11.52% and (NWC+PP&E)/TA was cut by 28.21%. NWC and NWC/TA demonstrated a growth of 92.49% and 93.77% respectively, and PP&E/TA also increased by 29.45%. Unlike the listed group, de-listed companies decapitalised and downsized. There were some dramatic changes during that period, for example, during 1995-96, the cumulative change of NWC decreased by 10,236% and (NWC+PP&E)/TA dropped by 729%. TA once increased by 2,764% in 2004 but this was followed by a sharper downsize during the following period (see chart 4.11).

When the MetaCapitalism efficiency change was perceived in the stock market in the following period (0, 1), there were four negative correlations seen when the share price changed: TA, PP&E, PP&E/TA and (NWC+PP&E)/TA, although the last was almost

insignificant. On the other hand, the share price had a more positive impact on the MetaCapitalism changes, especially with NWC and NWC/TA, while negatively correlated with TA and PP&E/TA (see table 4.22).

From the above analysis, it can be seen that de-listed companies were following the MetaCapitalism strategy to a greater extent than listed companies. It is also observable that total assets had a significant positive correlation with the share price during the same period. It is doubtful whether the MetaCapitalism strategy contributed to the failure of those companies or whether the stock market played more of a reflective role in this case.

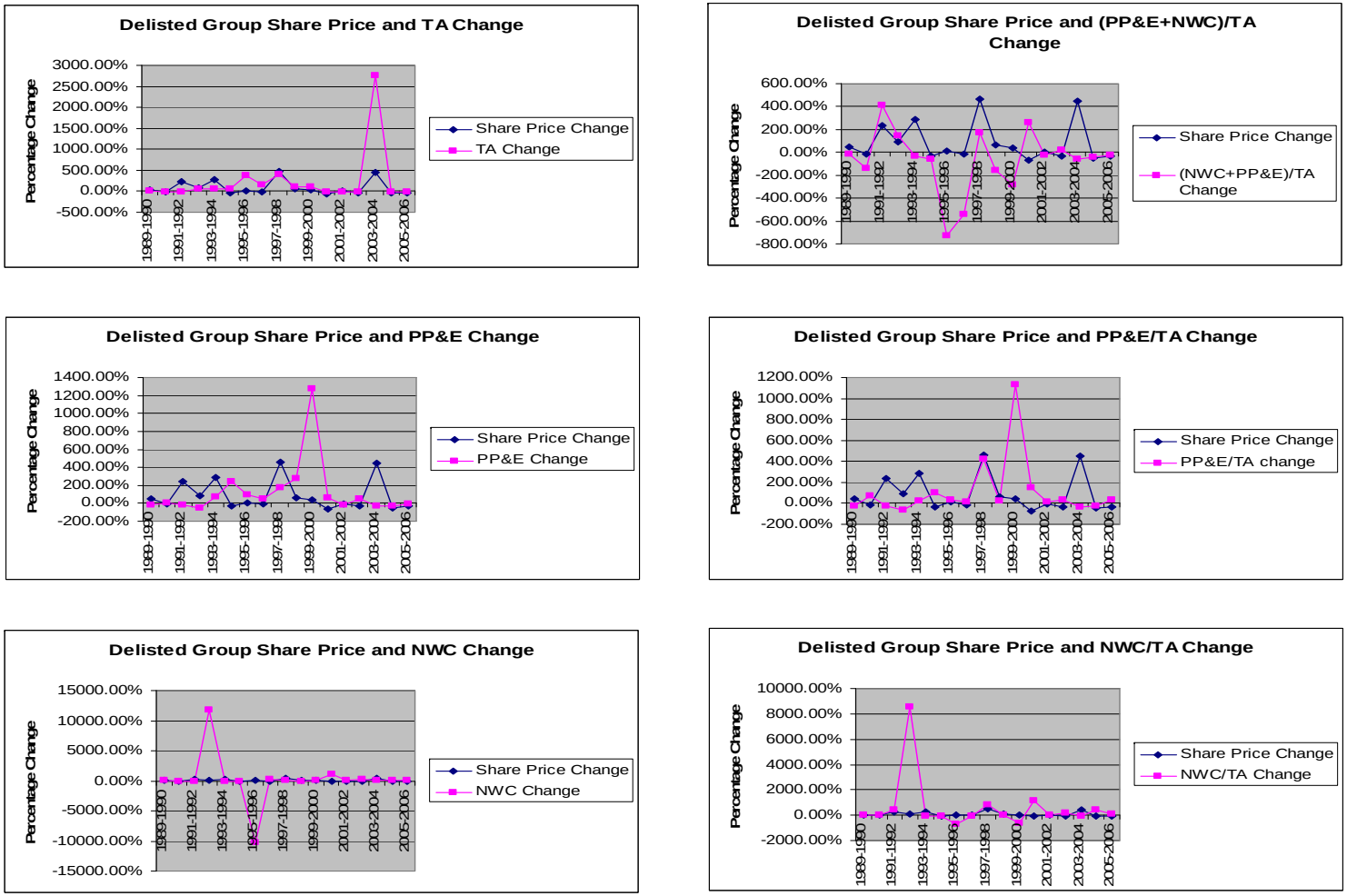



Chart 4.13: Delisted companies Share Price & the MetaCapitalism indices correlations

### *4.9 Whole Australian Telecom Industry*

| | Share Price | Share Price | Share Price |
|---|---|---|---|
| period (-1,0) | period (-1,0) | period (-2,-1) | period (0,1) |
| **TA** | 0.80 | -0.18 | -0.30 |
| **PP&E** | -0.15 | 0.31 | -0.31 |
| **NWC** | 0.34 | 0.04 | 0.14 |
| **PP&E/TA** | -0.59 | 0.38 | -0.22 |
| **NWC/TA** | 0.22 | -0.08 | -0.21 |
| **(NWC+PP&E)/TA** | 0.01 | 0.06 | -0.30 |

Table 4.23: Whole Australian telecom industry (cumulative data) correlations

The changes to the whole telecom sectors the MetaCapitalism efficiency in each period (-1, 0) demonstrates distinctive characteristics when compared to change in the share price over the same period; TA correlates positively with the share price change (0.8) while on the other hand PP&E/TA correlates negatively at (-0.59). The NWC and NWC/TA show a moderate positive correlation at 0.34 and 0.22 respectively while PP&E and (NWC+PP&E)/TA show minor correlations with the share price change (see table 4.23).

When the changes in the MetaCapitalism efficiency were perceived during the following period (0, 1), 5 out of 6 indices demonstrated a negative correlation. There was no significant consistency when the previous change of share price (-2, -1) was compared with the MetaCapitalism efficiency indices, but the perception was different for PP&E and PP&E/TA in the period (0, 1) and (-2, -1) (see table 4.23).

| | SP | TA | PP&E | NWC | PP&E/TA | NWC/TA | (PP&E+NWC)/TA |
|---|---|---|---|---|---|---|---|
| **1989-1990** | 131.67% | -12.99% | -24.98% | 264.39% | -0.51% | 31.97% | 31.46% |
| **1990-1991** | -115.28% | -107.47% | -9.93% | 262.22% | 14.47% | -2.97% | 11.51% |
| **1991-1992** | 1343.33% | -139.65% | -128.20% | -1753.76% | -5.56% | -134.09% | -139.65% |
| **1992-1993** | 517.25% | 468.07% | -317.05% | 57982.84% | -58.62% | -66.39% | -125.01% |
| **1993-1994** | 1457.63% | 673.95% | 102.93% | 1470.35% | 74.63% | 106.46% | 181.08% |
| **1994-1995** | -151.70% | 594.28% | 3294.44% | 317.47% | 9.81% | -46.70% | -36.90% |
| **1995-1996** | 1241.22% | 2006.21% | 297.24% | 53607.34% | 22.35% | 30.87% | 53.22% |
| **1996-1997** | -213.72% | 676.30% | -130.39% | -1935.06% | 36.20% | -100.55% | -64.35% |
| **1997-1998** | 2242.50% | 1957.42% | 1813.31% | 5561.04% | -52.86% | 23.89% | -28.96% |
| **1998-1999** | 2329.53% | 1384.71% | 2250.31% | -1518.22% | 51.59% | -96.40% | -44.81% |
| **1999-2000** | 456.53% | 4599.21% | 34491.84% | -7037.83% | 170.06% | -61.12% | 108.95% |
| **2000-2001** | -1106.33% | 775.42% | 7723.23% | -556557.35% | 402.97% | -79.71% | 323.27% |
| **2001-2002** | -100.54% | -220.31% | 54.08% | 2045.73% | 10.92% | -56.51% | -45.59% |
| **2002-2003** | -542.94% | -388.77% | 1577.03% | -7544.76% | -109.54% | -178.84% | -288.39% |
| **2003-2004** | 5421.50% | 29766.19% | -774.10% | 18470.07% | -360.46% | 271.38% | -89.08% |
| **2004-2005** | -554.82% | 406.20% | 2598.95% | -1251.53% | 241.80% | -648.67% | -406.87% |
| **2005-2006** | 1080.41% | 842.16% | 3010.99% | 597.60% | -78.01% | -1313.20% | -1391.21% |
| **2006-2007** | 1239.90% | 2767.70% | 4595.44% | -3334.98% | -454.64% | 1664.85% | 1157.17% |

Table 4.24: Cumulative change to the whole telecom industry

Over a 19 year period the share price jumped by 1,239.90%, witnessed by changes in the MetaCapitalism efficiency indices such that TA increased by 2,767.70%, PP&E increased by 4,595.44%, NWC decreased by 3,334.98%, PP&E/TA increased by 454.64%, NWC/TA increased by 1,664.85% while (NWC+PP&E)/TA increased by 1.157.17%. During that period the whole industry increased its TA and PP&E base and although NWC decreased dramatically though NWC/TA, it was still seen with an upward trend (see table 4.24 & chart 4.12).

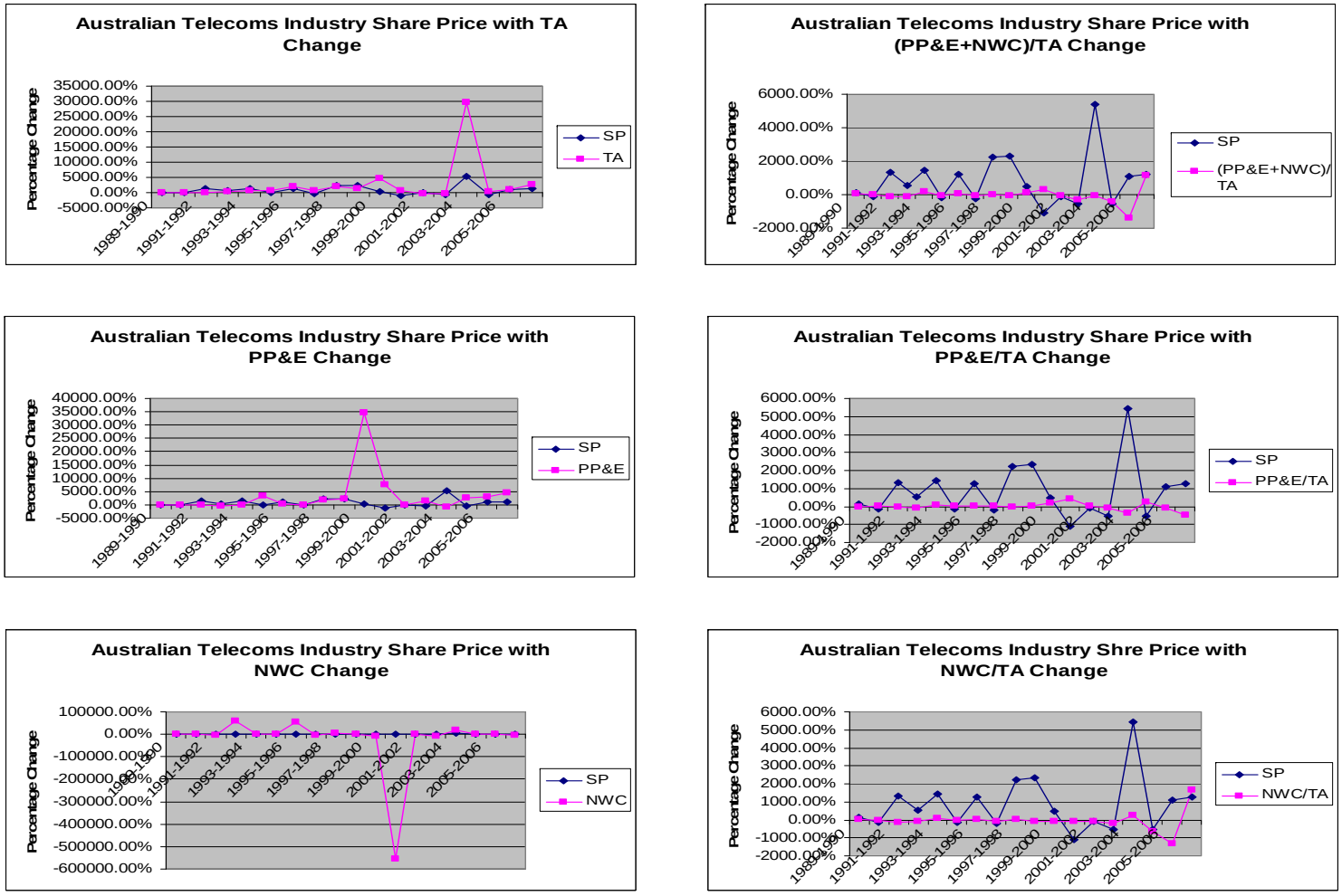



Chart 4.14: Whole Australian Telecom industry Share Price & the MetaCapitalism indices correlations

## *4.10 Comparison analysis of telecom and other industry sectors*

| | | Change 1989 - 2008 | | | | Change 1989 - 2008 | | |
|---|---|---|---|---|---|---|---|---|
| | **Sector** | **Listed** | **Delisted** | **Total** | **Sector** | **Listed** | **Delisted** | **Total** |
| 1 | Conumer Staples | 58 | 34 | 92 | Consumer Staples | 63.04% | 36.96% | 3.74% |
| 2 | Utilities | 30 | 11 | 41 | Utilities | 73.17% | 26.83% | 1.67% |
| 3 | Consmer Discretionary | 172 | 62 | 234 | Consmer Discretionary | 73.50% | 26.50% | 9.52% |
| 4 | Information Technology | 120 | 43 | 163 | Information Technology | 73.62% | 26.38% | 6.63% |
| 5 | Telecommunications | 33 | 9 | 42 | Telecommunications | 78.57% | 21.43% | 1.71% |
| 6 | Industrials | 203 | 55 | 258 | Industrials | 78.68% | 21.32% | 10.50% |
| 7 | Financials | 334 | 83 | 417 | Financials | 80.10% | 19.90% | 16.97% |
| 8 | Health Care | 166 | 30 | 196 | Health Care | 84.69% | 15.31% | 7.97% |
| 9 | Materials | 662 | 108 | 770 | Materials | 85.97% | 14.03% | 31.33% |
| 10 | Energy | 222 | 23 | 245 | Energy | 90.61% | 9.39% | 9.97% |
| | **Total** | | | **2458** | | | | **100.00%** |

Table 4.25: A comparison of telecom and other industry sectors

Of the 10 sectors categorised on the ASX, the telecommunications sector was the second last in number (1.71%). During the period from 1989 to 2008 there were 33 companies (78.57%) listed and 9 de-listed (21.43%). According to de-listed companies it ranks the 5$^{th}$ of all sectors.

By comparison the energy sector, the second in number (9.97%), performed best according to the percentage of de-listed companies (9.39%). Consumer staples, at 3/74% of the listed market, was the worst performing industry, however the delisted companies make up 36.96%.

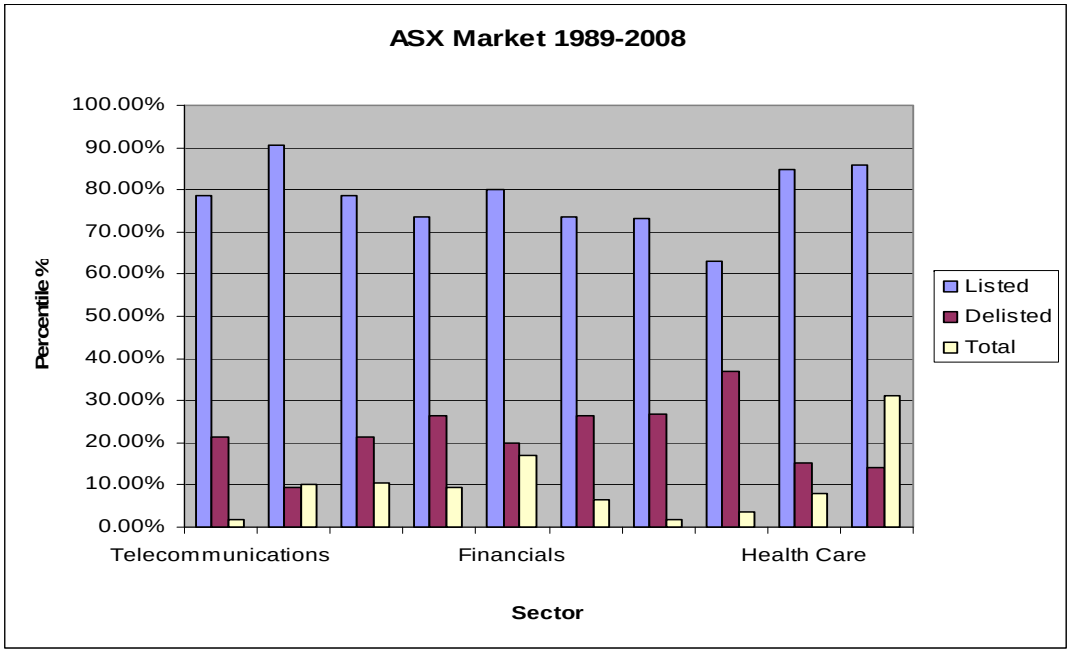



Chart 4.15: ASX Market 1989 -2008

# CHAPTER FIVE

## CRITIQUE OF METACAPITALISM EFFICIENCY

The discussion in this chapter provides a critique of the essentials of efficiency assumptions that drive free market capitalism and the MetaCapitalism. Efficiency itself is nothing wrong, just as information technology which makes tremendous efficiency becoming possible is nothing wrong. However, the concern is the means-ends assumption. These essentials determine the fatal philosophical foundations underlining the MetaCapitalism hypothesis.

## *5.1 Efficiency Means*

The unrelenting pursuit of efficiency in the capitalist market leads a consulting firm to propose a so-called revolutionary strategy of the MetaCapitalism which may have a disastrous effect on companies embracing it, and the society as a whole. In the short run, the MetaCapitalism could possibly bring in quick market benefits, as seen from the short term rise in the share price of those leading firms which follow the strategy (e.g. some failed companies). Decapitalisation and downsizing by means of outsourcing and offshoring (O/O), to a certain degree, seem essential to the survival of a company in the 21st century. Particularly, it will streamline the operations and management by reducing unnecessary spending and then allow a company to invest more in research and development (R&D), which can be related to the power engine in generating superior edge on a competitive market. However, when the pursuit of efficiency goes beyond the safety margin at an unreasonable level, then the going concern of a company may be at risk, as seen from those delisted (failed) telecom companies.

The risks of the O/O strategy have become apparent the worldwide nowadays. According to Deloitte consulting outsourcing survey (2008), 30 percent of the participating companies were dissatisfied or very dissatisfied with the outsourcing arrangement. Additionally, 39 percent of the respondents had terminated the O/O contracts (Deloitte offshoring report, 2007). It is also commented that 'probability is nothing but common sense reduced to calculation', that is, the decision making is based on the "common sense" of core and noncore functions which is incomplete (Barnhart, 2006).

"Downsizing", as discussed previously, is a contemporary term such as reengineering, rightsizing, layoff, reductions in force, organization decline, and reorganizing are regularly used as substitutes for "downsizing". While they do denote to some extent a common meaning, each has its own connotation (Appelbaum, 1999). Under the MetaCapitalism model downsizing can be achieved by decapitalising the non-core functions which include both physical and human capital. Evidence (Littler, Bramble, and McDonald 1994; Mone, McKinley and Barker 1998) suggests that downsizing is expected to continue, and may become a permanent means of conducting business. For example, Bennett (1991) and Buch (1992) findings disclose that more than 85 percent of the Fortune 500 companies have downsized during the 1990s, and 100 percent were planning to do so in the next five years (cited in Farrell, 2000).

However, a growing amount of evidence has emerged in questioning the effectiveness of downsizing as an organisational strategy. Questions were raised such as: (1) the type of downsizing strategy will impact upon the level of trust between employees and senior management, and will also directly effect the market orientation of the organisation. (2)

That the type of downsizing strategy and the level of trust will directly effect the employee commitment to the organisational values of creating superior customer value. (3) That the employee commitment to such organisational values will affect the level of market orientation (cited in Farrell, 2000).

## *5.2 Efficiency Ends*

The critique of the MetaCapitalism efficiency also considers its place within the capitalist economic system. The single goal of utility-maximisation assumption for individuals and firms is the underlining quest for efficiency. The economic decision making is based on accounting information which supported by the means-end practice. That is, accounting specifies the means not the ends (Chua, 1986). To this end, accounting is only focused on measuring the fruit of efficiency – the profit in the capitalist market, whereas the costs are measured in an incomplete way – the contingent cost and its socio-political impact in the long term which can not be quantified and reduced to numbers at that certain period are out of the consideration from the measurement. The economic reality as communicated through accounting information therefore is a partial and constructed reality (Hines, 1988).

On the other hand, the financial market is composed by the thinking participants whose behaviours are not only rational but also emotional. There are actions and reactions especially in the financial market as being called as reflexivity - according to Soros. The financial market not only owns a perception function, but also shows a manipulative function. This manipulative function is largely rooted on the participants' emotions

rather than the rational reasoning. Gittins (2008) argues that reason without emotion leads to the worst excesses of economists' rationalism. According to the economics and the consulting firm, the most efficient means to achieve our objectives, particularly in the case of material objectives, is the province of reason and logic. Therefore, their mental attitude is: tell us what your material objectives are and we will tell you the best way to go about achieving them at the minimum cost in resources, given your desired level of quality. Human emotions are not counted by their studies which result in their so-called scientific hypothesis not being explained in the financial market. For example, the EMH has never been proved. In the case of the MetaCapitalism assumptions regarding efficiency, similarly have the fatal weakness that they are completely based on the rationalism of human behaviour, while disregarding the variety of goals in an 'open society' in which emotional individuals are confronted with decision making (Popper, 1945).

As regarding the ends for the MetaCapitalism efficiency, as claimed by Means and Schneider (2000: 132), the economic wealth can be increased by tenfold to 200 trillion by 2009. Given an imagination that this picture lastly becomes true despite the current financial crisis, then who has the authority to benefit from this rapid wealth accumulation? It is the employees, the clients, the society or only a few oligopolies? Definitely the 12,000 employees who are listed to be laid off by Telstra's O/O project have no rights to share the fruits of the wealth accumulation but to sacrifice for the so-called revolutionary efficiency program. Hence, the pursuit of the MetaCapitalism efficiency only approves the ideology of will to power[12]; the MetaCapitalism efficiency

[12] The will to power is a prominent concept in the philosophy of Friedrich Nietzsche and further developed by Michel Foucault as biopower in which capitalist states exerted control over people to better promote life. Macintosh (2002) builds upon the work of Foucault to illustrate how accounting systems

is just an advanced apparatus of power that governs the majorities to serve the greedy needs of the one with power.

Moreover, are the human happiness solely based on material achievements? Surveys conducted by different research organizations all conclusively proved that money can buy anything but happiness. People express greater satisfaction with their life overall and their happiness than they do with their financial satisfaction and decision-making freedom (Tiffen & Gittins, 2004: 243). Survey by BBC also revealed that factors that make people happy may vary from one country to the next with personal success and self-expression being seen as the most important in the US, while in Japan, fulfilling the expectations of family and society is valued more highly (Rudin 2006).

By considering the problematic foundations of the MetaCapitalism assumptions through a critical lens, it is argued that there is a call for a fundamental shift in an emphasis towards an increased corporate social sustainability that results in a better open society as a whole.

### *5.3 Efficiency Myth*

The four results of this empirical research can be illustrated by the Australian Telecom industry:

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within organizations have been systems of surveillance and discipline from the time of accounting's origins.

- Share price changes are more sensitive to the negative movement of PP&E, which reflects the tenets of the MetaCapitalism theory. On the other hand, NWC and TA have a strong positive correlation with the share price which is contradict with the MetaCapitalism theory.

- The results indicate the nature of the telecom industry. Compared to traditional industries, the telecom industry is based on network and information technology. Thus PP&E does not occupy the same percentage of total assets as in traditional industries.

- How to make a plant the right size, including the property and equipment, could be vital to business success. The adverse effects for delisted companies may indicate that there is a safety margin of decapitalisation. If downsizing of PP&E goes above the safety margin, the company will be severely punished by the market.

- The results showed there is a strong monopoly in the Australian telecom market. It is monopolised by Telestra, Singtel (Known as Optus), Telecom New Zealand Limited, and Huschison (known as Three), as seen from their unchanged ranking in the first five through the period under analysis.

- The stock market is bifunctional. On the one hand, the market is trying to perceive the MetaCapitalism efficiency changes sequentially; on the other hand, its effect is counter-acted by its manipulative function concurrently. The manipulative function has an opposite reflection with the MetaCapitalism efficiency changes.

The test proved that telecom companies are adjusting their physical capital, that is, PP&E. Farrell's (2005) research showed a similar result when she indicated that 'the market clearly does consider PP&E to be important. PP&E was found to be the single

most important index for individual companies'. The movement trend showed that most of the companies experienced dramatic downsizing in plant, property, and equipment. However, there are two different results: they were either successful or unsuccessful. From these aspects we doubt that efficiency methodology worked for every company and the existence and development of both company and industry are not only based on the single end of: profitability. Furthermore, the question arises of to what degree should company be decapitalised in order to become more efficient?

The test showed that both NWC and TA demonstrate a positive correlation with the share price. This indicates the importance of NWC and TA to the performance of the telecom industry. However, this result is contradictory to the MetaCapitalism hypothesis which assumes there is a negative correlation between changes in the share price and indices.

For the telecom industry, VAC is an outstanding phenomenon because it includes component vendors and application developers that assemble a variety of network equipment and systems and sell them to network operators, with whom they often partner and tightly collaborate (Camponovo & Pignuer, 2003).

As for outsourcing, the question is how to accurately identify the non-core function from the central core functions? According to research into US airline companies by Mickhail (2006), under the strategy for profitability, they outsourced their security functions to the lowest bidder. Thus there was a conflict of interest during peak periods 'between profit-driven airlines trying to minimise flight delays and the responsibility companies carry to provide security'. It is doubtful whether the tragedy of September

11th, 2001 only happened casually in the airline industry. If there were more security regulations a larger investment of assets including security staff and strict scanning etc, the tragedy could have been avoided when the risk to the bottom line could be minimised.

In order to pursue maximum efficiency and profitability, companies are inclined to opt for a 'high risk high return'. In considering the recent financial crunch, risk did not result in the prosperity expected, instead there was disaster. Greenspan (2007: 522-523) argued that there is a large explanatory variable missing in both risk-management and macro-economic models. Current practice is to take into account behavioural responses through 'add factors'. Add factoring is an implicit recognition that models, as we presently use them, are structurally deficient, but the practice does not sufficiently address the problem of variables.

The stock market, as claimed by Soros (2008), is the market that consists of thinking participants who are being observed. In such a case, the scientific hypothesis is questionable as the being observed can manipulate the results as predicted. People in the market will not perceive outsourcing and downsizing as a sign of efficiency, they will presume that the company has encountered some serious financial problems. The contradictory perception of efficiency is deemed to make the hypothesis of MetaCapitalism fail in the real market.

The Buddhist principle could be adopted here to further explain the case, that is, no one single thing happens casually according to the rules of the universe – "casual rules" or "cause and effect". As the saying goes, one cannot grow a melon from a bean seed. If

the hatred from the terrorist was the cause of the seed, then the violation of security in the US airline companies was the support which resulted in September 11th, 2001. We hope that the telecom companies will not operate as a support to assist another kind of human tragedy as those US airline companies.

As a capital intensive industry, telecom exhibit extremely strong economies of scale, which argue for a limited number of competitors doing business (Katz, 1998). This confirms the empirical results that three operators dominate the Australian telecom market, Telestra, Optus, Huschison (known as three). Farrell (2005) pointed out that 'when monopolies are created, competition is not effective and one player can set the price and the quality of the goods and services'. As well as an 'unrelenting quest for efficiency and market dominance facilitated by the ability of dominant firms to control smaller member forms within the VACs, including deciding who to let in and on what terms, opportunities for price manipulation and collusion within and between VACs, and the resulting concentration and centralization of capital and power'(Mickhail and Ostrovsky, 2005,) This evidence has proved that the MetaCapitalism assumption was based on an ideal economical society and any conditions should be qualified. Value-added Communities should connect with the society elements because it ignores social phenomena such as competition, monopoly, and an unequal social system.

This empirical research was based on the correlation between the share price and six of MetaCapitalism indices. Though as stressed by the authors, due to the complexity of the stock market, they wanted to make it clear that the thoughts of the MetaCapitalism are not tied to any market index (Means & Schneider, 2000). We still believe that a change in the share price in any degree reflects this methodology in the real market very highly.

## *5.4 Conclusion*

Overall, information technology has brought a new wave to business infrastructure. All the new ideas brought by Means and Schneider (2000) like decapitalisation, outsourcing, and downsizing provided a radical thought for industry executives but their ideas ignored the social issues in the long term. We worry how employee loyalty and motivation can be stimulated with alongside large scale downsizing or outsourcing. Could a company be sustainable and further developed without the loyalty and stability of human resources? The MetaCapitalism on one hand stresses the importance of human capital; on the other hand it advocates extreme downsizing and outsourcing of non-core assets including physical and human assets. This is a paradox.

MetaCapitalism theory was rooted on the single goal of utility maximisation assumed for individuals and firms (Chua, 1986). Every “means” that the market or companies adopted are for one end, decreasing costs and increasing efficiency. However, not every unit has the same goals. The means-ends assumption of the MetaCapitalism was fundamentally ill constructed.

A final word, there is a call for a long term strategy that will consider more relevant elements not limited to profit performance in the telecom industry and markets. We are calling for a harmonious and well developed society in a moderate and human way. MetaCapitalism is a strategy which could mislead the market with immediate unpredictable and negative social consequences, and in the future.

# CHAPTER SIX

## LIMITATIONS AND CONCLUSIONS

## *6.1 Limitations*

This empirical research is a primary study of the effects of the MetaCapitalism assumptions on the company and industry as a whole. The findings display some distinctive discrepancies with the presumptions of the consultants. Due to the scope of the data collection, there are some limitations in conducting the research:

- Limitation of the data

The research area is focused on the ASX listed and delisted telecom companies, therefore the companies which are not listed on the ASX are excluded from the study, e.g. Vodafone, Ericsson, Nokia are non-listed carriers in Australia even though they have a heavy market share. Furthermore, the 2008 data are not included in this research which is expected to provide more precise picture and continuity.

- Grouping the companies

It would be more specific to separate the acquired/merged companies into different groups. However, due to insufficient samples being acquired, merged or taken over, they are considered in one group. This also can be the reason that the test results of correlations of the MetaCapitalsim indices and share price are quite different with other groups.

- Comparison between industries

This research concentrated on the telecom industry. In addition, an overall listed and delisted status during the 19-year period was provided inter-sections. However, a section-to-section comparison would be beneficial for future research. This would

enable a comprehensive understanding of the adoption of the MetaCapitalism strategy in each industry.

## *6.2 Conclusions*

Australian ASX listed and delisted telecom companies from 1989 to 2007 are selected as the sample companies to conduct the correlation coefficient tests on the MetaCapitalism efficiency assumptions. So far, the evidence in supporting the contribution of the MetaCapitalism efficiency to market value is very limited.

The MetaCapitalism assumptions as proposed by the consulting firm PwC in 2000, advocating for decapitalisation, downsizing and innovation in a value-added community (VAC). This research therefore is aimed especially to test the effect of decapitalisation on the company's market performance which uses the share price as the market indicator. Decapitalisation is translated into six indices as: total asset (TA), property, plant and equipment (PP&E), net working capital (NWC) and the percentage of PP&E over TA, NWT over TA and the sum of PP&E and NWC over TA. According to the hypothesis, there should be a strong negative correlation between the share price change and the decapitalisation indices.

Telecom companies are divided into three levels to conduct the test. Firstly, the listed companies and the delisted companies as a whole were compared; Secondly, the listed group was subdivided into the high-ranking group, mid-ranking group and low-ranking group whereas the delisted group was further divided into the failed group and acquired

/ merged group respectively. Lastly, one or two individual companies were selected from the each subgroup for testing. The research mainly used the average data for testing. In addition, the cumulative data was used to obtain a picture of the whole industry.

Studies at the sub-group and individual level are not compliant with the assumption. It is interesting to note that TA is vitally important to most of the companies, especially those with smaller size. NWC and NWC/TA also had a positive impact on the share price, particularly for high ranking companies, for example, Telstra.

On the other hand, PP&E and PP&E/TA may indicate some compliance with the assumption which demonstrated negative correlations especially significant in the high ranking groups, for example, Telstra and Optus. But not every company could afford to benefit from downsizing PP&E or decrease the percentage of PP&E to total assets, which could be tackled from the failed examples.

The correlation between (NWC+PP&E)/TA and share price is not clear. Whether it holds a positive or negative correlation may depend on other factors, for instance, the size of the company. It showed opposite directions of correlation between the high ranking group and the failed group.

It was also notable that the empirical results were more significant with high-ranking companies (revenue above $100 million) while less significant in the mid-ranking (revenue above $10 million) and low-ranking companies (revenue below $10 million) in the listed group. It seemed ambiguous for de-listed companies at the sub-group level;

however, different cases may illustrate a different approach to downsizing NWC or PP&E or TA, or a combination which caused the same result of failure. By comparison, the extreme examples of the best performed and worst performed companies in the market adversely affected by the MetaCapitalism are illustrated.

The theory of reflexivity of Soros (2008) is firstly tested in this research by conducting the correlation between share price and the MetaCapitalism indices concurrently or sequentially. The findings proved that the stock market has both cognitive and manipulative functions while the latter function has more effect on the companies. The cognitive function was shown when testing the change in the MetaCapitalism indices in the current period (-1, 0) with the share price change in the previous (-2, -1) and following period (0, 1). The manipulative function was tested by the concurrent changes in the MetaCapitalism (-1, 0) and the share price in the same period (-1, 0). The results reveal that the manipulative function is stronger than the cognitive function according to the significance of the correlation.

Overall, the empirical results of both listed and de-listed companies indicated the indispensable position of NWC and TA to the performance of Australian telecom companies. While PP&E could be decapitalised to a certain extent, this would only be possible for a company with extra PP&E. Within the safety margin, decreasing PP&E may raise the ranking of the company in the stock market; but if extended beyond that the company would possibly suffer a lower ranking or worse, be de-listed due to failure.

The MetaCapitalism assumption as promoted by the consulting firm PwC suggested to have misled the company and industry to erode their safety margin had they not

considered their unique situation regarding capital scale, etc. Though the financial market is diversified and volatile and somehow unpredictable due to its reflexivity, our empirical research may indicate strong relationship between the market reaction and the company's MetaCapitalism level, however, different to the consulting firm's prediction.

# APPENDIX

# Appendix A: Ranking List of Australian Telecom Companies 1989-2007

| | Annual Profit & Loss (Total Revenue) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Listed Group** | | **1989** | **1990** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** |
| 1 | TLS | Telstra Corporation Limited | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | SGT | Singapore Telecommunications Limited | | | | | | | | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | TEL-NZ | Telecom Corporation of New Zealand Limited | | | | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | TEL | Telecom Corporation of New Zealand Limited | | | | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | HTA | Hutchison Telecommunications (Aust) Ltd | | | | | | | | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | SOT | SP Telemedia Limited | | | | | | | | | | | 27 | 29 | 19 | 14 | 12 | 16 | 8 | 6 | 6 |
| 7 | MAQ | Macquarie Telecom Group Limited | | | | | | | | | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 8 | 7 |
| 8 | IIN | iiNET Limited | | | | | | | | | 12 | 13 | 14 | 13 | 15 | 12 | 11 | 9 | 10 | 9 | 8 |
| 9 | PEO | People Telecom Limited | | | | | | 7 | 10 | 10 | 15 | 19 | 23 | 27 | 25 | 28 | 23 | 15 | 11 | 11 | 9 |
| 10 | REF | Reverse Corp Limited | | | | | | | | | | | | | | | | | | 13 | 10 |
| 11 | MTU | M2 Telecommunications Group Limited | | | | | | | | | | | | | | | | 32 | 15 | 15 | 11 |
| 12 | AMM | Amcom Telecommunications Limited | | | | | | 6 | 6 | 8 | 11 | 18 | 26 | 26 | 18 | 18 | 17 | 13 | 14 | 14 | 12 |
| 13 | EFT | Eftel Limited | | | | | | | | | | | 24 | 21 | 20 | 17 | 15 | 14 | 13 | 16 | 13 |
| 14 | PWK | PIPE Networks Limited | | | | | | | | | | | | | | | | | 24 | 19 | 16 |
| 15 | CVA | Clever Communications Australia Limited | | | | | | | | | | | | | | | | 33 | 26 | 22 | 17 |
| 16 | TEE | Tele - IP Limited | 1 | 4 | 4 | 8 | 7 | 10 | 7 | 13 | 13 | 20 | 29 | 23 | 22 | 25 | 21 | 21 | 29 | 20 | 18 |
| 17 | QUE | Queste Communications Limited | | | | | | | | | | | | 24 | 27 | 31 | 29 | 12 | 18 | 17 | 19 |
| 18 | ENG | Engin Limited | | | | | | | | 6 | 8 | 7 | 9 | 9 | 9 | 15 | 14 | 17 | 17 | 23 | 20 |
| 19 | JMB | Jumbuck Entertainment | | | | | | | | | | | | | | | | 25 | 23 | 21 | 21 |
| 20 | FUL | Fulcrum Equity Limited | | | | | | | | | | | 28 | 32 | 31 | 24 | 22 | 20 | 21 | 24 | 22 |
| 21 | BGL | Bigair Group Limited | | | | | | | | | | | | | | | | | | 26 | 23 |
| 22 | SIU | Sirius Telecommunications Ltd | | | | | | | | | | 16 | 17 | 19 | 17 | 13 | 13 | 11 | 16 | 25 | 24 |
| 23 | ETC | Entertainment Media & Telecoms Corporation Limited | | | | | | | | | | 11 | 20 | 22 | 23 | 20 | 18 | 22 | 22 | 27 | 25 |
| 24 | FRE | Freshtel Holdings Limited | | | | | | | | | | | | | | | | | 33 | 31 | 26 |
| 25 | STE | Stratatel Limited | | | | | | | | | | | | 30 | 30 | 30 | 28 | 26 | 28 | 29 | 27 |
| 26 | ICC | IC2 Global Limited | | | | | | 5 | 4 | 7 | 10 | 12 | 18 | 20 | 21 | 21 | 25 | 28 | 32 | 32 | 28 |
| 27 | FUT | Future Corporation Australia Limited | | | | | | | | | | | 16 | 7 | 24 | 16 | 19 | 27 | 30 | 34 | 29 |
| 28 | BRO | Broad Investments Limited | | | | | | | | | 9 | 10 | 12 | 15 | 16 | 26 | 20 | 19 | 25 | 30 | 30 |
| | **Delisted Group** | | | | | | | | | | | | | | | | | | | | |
| 1 | MSO | Mobilesoft Limited | | | | | | | | | | | 25 | 28 | 29 | 27 | 24 | 18 | 20 | 28 | |
| 2 | CGI | Consolidated Global Investments Limited | | | | | | | | | | | | | 32 | 23 | 16 | 24 | 27 | 33 | |
| 4 | CAG | Cape Range Wireless Limited | 3 | 5 | 5 | 6 | 5 | 8 | 8 | 11 | 14 | 17 | 15 | 16 | 26 | 32 | 30 | 30 | 31 | | |
| 3 | CCO | CircleCom Limited | | 1 | 2 | 3 | 8 | 12 | 12 | 14 | 16 | 14 | 21 | 25 | 14 | 19 | 27 | 31 | | | |
| 5 | GDC-NZ | GDC Communications Limited | | | | | | | | | | 9 | 10 | 11 | 8 | 10 | 10 | 10 | | | |
| 6 | NWL | New Tel Limited | | | | | | | | | | | 19 | 18 | 11 | 8 | 32 | | | | |
| 7 | IPW | IPWorld Limited | | 2 | 6 | 7 | 9 | 11 | 11 | 12 | 17 | 15 | 8 | 17 | 33 | 33 | 33 | | | | |
| 8 | UNW | Unwired Group Limited | | | 1 | 4 | 6 | 9 | 9 | 9 | 7 | 8 | 11 | 14 | 13 | 22 | 31 | 29 | 19 | 18 | 14 |
| 9 | OTL | Orion Telecommunications Limited | | | | | | | | | | | | | | | | | 12 | 12 | 15 |
| 10 | BBB | B Digital Limited | | | | | | | | | | | 22 | 8 | 7 | 7 | 7 | 6 | 6 | 7 | |
| 11 | PWT | PowerTel Limited | 2 | 3 | 3 | 5 | 4 | 4 | 5 | 5 | 5 | 6 | 7 | 12 | 10 | 9 | 8 | 8 | 9 | 10 | |
| 12 | NCA | Neighborhood Cable Limited | | | | | | | | | | | | 31 | 28 | 29 | 26 | 23 | | | |
| 13 | UEC | Uecomm Limited | | | | | | | | | | | 13 | 10 | 12 | 11 | 9 | | | | |
| | **Total listed companies** | | **3** | **5** | **6** | **8** | **9** | **12** | **12** | **14** | **17** | **20** | **29** | **32** | **33** | **33** | **33** | **33** | **33** | **34** | **30** |

# Appendix B: Australian Telecom Companies Ranking Changes 1989-2007 by Revenue

| Annual Profit & Loss (Total Revenue) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Co. | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Listed Companies | | | | | | | | | | | | | | | | | | | | |
| 1 | TLS | | | | | 12,656,000,000 | 13,293,300,000 | 13,974,800,000 | 15,133,800,000 | 15,898,000,000 | 17,239,000,000 | 18,171,000,000 | 19,785,000,000 | 22,983,000,000 | 20,802,000,000 | 21,616,000,000 | 21,280,000,000 | 22,657,000,000 | 23,100,000,000 | 23,960,000,000 |
| 2 | SGT | | | | | | | | | | | 4,512,792,982 | 4,707,520,891 | 11,294,825,238 | 7,886,676,875 | 9,602,891,475 | 9,833,821,782 | 10,173,102,426 | 12,477,510,144 | 11,274,346,405 |
| 3 | TEL-NZ | | | | 2,571,500,000 | 2,474,300,000 | 2,539,000,000 | 2,868,800,000 | 3,186,900,000 | 3,133,500,000 | 3,426,500,000 | 3,499,000,000 | 4,335,000,000 | 5,666,000,000 | 5,537,000,000 | 5,191,000,000 | 5,380,000,000 | 5,949,000,000 | 5,815,000,000 | 5,582,000,000 |
| 4 | TEL | | | | 1,832,629,258 | 1,868,520,685 | 2,040,112,585 | 2,555,123,516 | 2,777,981,171 | 2,767,758,995 | 2,860,422,405 | 2,959,665,819 | 3,477,458,687 | 4,516,180,455 | 4,783,998,617 | 4,532,041,208 | 4,904,284,412 | 5,454,295,406 | 4,782,465,663 | 5,063,038,548 |
| 5 | HTA (3) | | | | | | | | 119,628,000 | 196,729,000 | 258,678,000 | 329,632,000 | 404,671,000 | 470,673,000 | 229,622,000 | 341,452,000 | 1,157,722,000 | 927,489,000 | 1,058,220,000 | 1,320,523,000 |
| 6 | SOT | | | | | | | | | | | 25,000 | 395,000 | 7,952,000 | 24,585,000 | 29,829,000 | 16,088,000 | 225,174,000 | 490,588,000 | 458,447,000 |
| 7 | MAQ | | | | | | | | | 51,000,000 | 72,600,000 | 117,100,000 | 193,794,000 | 221,341,000 | 228,370,000 | 234,453,000 | 226,869,000 | 230,543,000 | 248,994,000 | 254,607,000 |
| 8 | IIN | | | | | | | | | 2,659,000 | 5,182,000 | 9,743,000 | 17,958,214 | 20,004,517 | 26,551,111 | 40,001,588 | 95,044,128 | 157,041,296 | 248,347,588 | 234,261,412 |
| 9 | PEO | | | | | | 1,039,000 | 233,000 | 1,036,367 | 292,512 | 360,200 | 427,940 | 1,142,455 | 1,807,134 | 1,877,943 | 4,004,309 | 16,204,287 | 100,041,117 | 110,781,591 | 100,894,618 |
| 10 | REF | | | | | | | | | | | | | | | | | 0 | 42,146,000 | 50,914,000 |
| 11 | MTU | | | | | | | | | | | | | | | | 0 | 23,529,148 | 33,219,946 | 43,574,449 |
| 12 | AMM | | | | | | 1,530,000 | 4,981,000 | 5,302,697 | 8,250,282 | 478,900 | 131,100 | 1,438,763 | 9,190,225 | 11,364,785 | 11,147,825 | 20,142,000 | 23,910,000 | 33,483,000 | 36,546,000 |
| 13 | EFT | | | | | | | | | | | 165,047 | 5,004,222 | 6,537,683 | 11,479,237 | 15,178,904 | 18,550,373 | 26,898,723 | 26,140,000 | 34,291,000 |
| 14 | PWK | | | | | | | | | | | | | | | | | 4,689,681 | 13,071,000 | 23,951,000 |
| 15 | CVA | | | | | | | | | | | | | | | | 0 | 3,905,102 | 10,741,699 | 18,180,813 |
| 16 | TEE | 1,189,000 | 1,367,000 | 1,051,000 | 55,000 | 210,000 | 484,000 | 2,924,000 | 355,683 | 656,400 | 147,140 | 0 | 2,900,800 | 3,067,239 | 4,076,268 | 4,569,926 | 6,893,038 | 1,445,675 | 12,858,913 | 17,291,295 |
| 17 | QUE | | | | | | | | | | | 0 | 2,800,814 | 857,573 | 761,958 | 520,997 | 20,403,478 | 13,083,102 | 25,584,510 | 17,247,760 |
| 18 | ENG | | | | | | | | 14,198,000 | 20,199,000 | 31,960,000 | 62,040,000 | 47,064,000 | 63,113,000 | 22,369,000 | 16,953,000 | 16,012,000 | 21,399,000 | 8,364,879 | 16,689,630 |
| 19 | JMB | | | | | | | | | | | | | | | | 2,992,945 | 7,227,695 | 11,362,727 | 15,302,864 |
| 20 | FUL | | | | | | | | | | | 1,200 | 3,000 | 136,907 | 5,987,127 | 4,436,523 | 7,507,323 | 8,817,968 | 7,723,549 | 13,389,030 |
| 21 | BGL | | | | | | | | | | | | | | | | | 0 | 6,889,858 | 9,103,496 |
| 22 | SIU | | | | | | | | | | 3,620,000 | 5,579,000 | 6,430,000 | 11,478,000 | 26,012,000 | 29,647,000 | 27,543,000 | 23,201,000 | 7,330,000 | 8,691,000 |
| 23 | ETC | | | | | | | | | | 9,837,953 | 3,989,047 | 3,499,362 | 2,252,299 | 7,314,546 | 8,390,010 | 6,619,899 | 8,816,000 | 3,787,000 | 7,293,000 |
| 24 | FRE | | | | | | | | | | | | | | | | | 98,000 | 1,288,000 | 3,839,000 |
| 25 | STE | | | | | | | | | | | | 121,720 | 487,586 | 794,704 | 1,209,903 | 1,207,175 | 1,605,033 | 1,889,370 | 3,218,575 |
| 26 | ICC | | | | | | 1,925,000 | 7,614,000 | 7,679,236 | 8,504,913 | 5,766,365 | 5,425,468 | 5,719,000 | 5,444,000 | 6,993,842 | 3,236,605 | 696,689 | 533,676 | 731,615 | 882,065 |
| 27 | FUT | | | | | | | | | | | 5,943,000 | 160,002,000 | 2,191,000 | 15,192,000 | 7,928,919 | 998,261 | 1,252,392 | 90,776 | 659,586 |
| 28 | BRO | | | | | | | | | 9,406,720 | 10,013,945 | 10,701,017 | 11,493,339 | 14,313,282 | 3,788,798 | 4,667,815 | 8,503,791 | 4,344,737 | 1,456,271 | 148,077 |
| Delisted Companies | | | | | | | | | | | | | | | | | | | | |
| 1 | MSO | | | | | | | | | | | 139,664 | 412,749 | 726,687 | 2,364,742 | 3,993,385 | 9,520,982 | 9,255,043 | 3,181,853 | |
| 2 | CGI | | | | | | | | | | | | | 0 | 6,452,750 | 15,124,028 | 4,293,337 | 2,008,041 | 258,539 | |
| 3 | CAG | 686,000 | 53,000 | 504,000 | 768,000 | 1,977,000 | 901,000 | 1,273,000 | 877,430 | 646,809 | 2,071,276 | 7,369,813 | 11,293,897 | 1,262,746 | 91,366 | 299,636 | 21,758 | 957,518 | | |
| 4 | CCO | | 3,360,000 | 3,504,000 | 3,719,000 | 161,000 | 157,000 | 121,000 | 21,373 | 118,879 | 5,082,227 | 2,812,507 | 1,459,817 | 21,229,713 | 8,491,014 | 2,817,181 | | | | |
| 5 | GDC-NZ | | | | | | | | | | 24,279,000 | 33,497,000 | 41,302,000 | 68,704,000 | 53,950,000 | 56,843,000 | 46,014,000 | | | |
| 6 | NWL | | | | | | | | | | | 4,708,000 | 9,022,000 | 46,558,000 | 143,916,000 | | | | | |
| 7 | IPW | | 3,265,000 | 184,000 | 552,000 | 148,000 | 243,000 | 194,000 | 406,163 | 48,937 | 4,011,000 | 65,052,000 | 10,951,000 | | 4,000 | | | | | |
| 8 | UNW | | | 8,025,000 | 2,564,000 | 1,259,000 | 881,000 | 427,000 | 5,123,044 | 24,082,248 | 30,753,642 | 18,231,640 | 15,058,267 | 22,236,982 | 6,573,138 | 40,822 | 509,000 | 11,492,000 | 23,441,000 | 33,807,000 |
| 9 | OTL | | | | | | | | | | | | | | | | | 59,082,000 | 81,306,000 | 30,999,000 |
| 10 | BBB | | | | | | | | | | | 2,268,845 | 59,065,067 | 134,954,000 | 174,690,000 | 182,656,000 | 280,624,000 | 329,164,000 | 358,812,000 | |
| 11 | PWT | 897,000 | 1,478,000 | 1,392,000 | 1,879,000 | 2,382,000 | 3,709,000 | 6,119,000 | 26,479,000 | 72,013,000 | 64,177,000 | 80,138,000 | 35,516,000 | 47,988,000 | 101,964,000 | 134,123,000 | 165,726,000 | 194,732,000 | 199,056,000 | |
| 12 | NCA | | | | | | | | | | | | 114,731 | 810,899 | 1,384,951 | 2,823,748 | 4,752,020 | | | |
| 13 | UEC | | | | | | | | | | | 10,165,000 | 41,934,000 | 30,581,000 | 44,718,000 | 68,139,000 | | | | |

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