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Predicting the risk of corporate failure
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approach using probability-based
tri-dimensional modelling

Bill Wilkinson
University of Wollongong

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**PREDICTING THE RISK OF
CORPORATE FAILURE FOR
AUSTRALIAN LISTED COMPANIES: A
FRESH APPROACH USING
PROBABILITY-BASED TRI-
DIMENSIONAL MODELLING**

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

DOCTOR OF BUSINESS ADMINISTRATION

from

UNIVERSITY OF WOLLONGONG

by

Bill Wilkinson, Bachelor of Business

GRADUATE SCHOOL OF BUSINESS

2009

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Abstract

Corporate failure is a regularly recurring problem for stakeholders, particularly investors, creditors and customers. Early attempts at predicting such failure typically relied on analysis of individual performance measurements such as accounting ratios; it was not until the late 1960s that a modelling approach to the problem started to evolve. Altman's Z-score model was the first approach to combine a series of weighted ratios using the statistical technique of multiple discriminant analysis (MDA) to arrive at a final score, which was used to determine whether or not a company was likely to fail. Substantial research has followed over the subsequent 40 years, resulting in model variants ranging from slight changes to the seminal Z-score approach, and finally to totally different approaches using a range of statistical tools.

This thesis builds on this earlier research by, firstly, reviewing the extensive literature to assess the perceived strengths and deficiencies of previous modelling approaches. Then, having set the key objective of arriving at a robust model that recognises these strengths and deficiencies and is readily accessible to researchers and practitioners, the model construct uses a combination of key components research has indicated to be of high predictive value. These comprise a combination of Z-score component factors, indicators of excessive gearing and overtrading, and key cash-flow indicators. The importance of non-financial factors has been emphasised by some researchers and, whilst they were considered and included in the model development, their value was found to be restricted to the most recent

accounting period prior to the failure event; other problems also limited their overall effectiveness. A raw cash flow from operations (CFFO) figure was not discussed at length in the literature and has been largely ignored in previous models, usually in favour of cash-flow ratios. However, its inclusion was found to enhance the robustness of the model developed in this thesis.

One of the key problems highlighted in previous research was the practicality of embracing a fail/non-fail cut-off point as presented by the MDA approach so commonly applied in many models. With the limitations and risks of such an approach it was decided instead to pursue a probability-of-failure scenario using the statistical tool, logistic regression. Two databases of Australian listed companies were developed, one of 47 failed companies and the other of 35 non-failed, both from three closely related industry groupings. The data from these companies, when applied to the model, produced results that predominantly met expectations with higher static and trending probability of failure as the actual failure event approached, and declining static and trending probability of failure for those companies in the non-fail category.

Substantial scope exists for further application of the modelling approach used in this thesis once adjustments are made for different industry categories and/or geographic environments. This could involve application of the model across a broad range of industry applications as well as ongoing refinement of the model in line with testing the effectiveness of an expanded range of potential indicator inputs.

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Lastly, I would like to acknowledge my wife and family, without whose support, encouragement, understanding and patience this task would have been so much more difficult to complete.

My heartfelt thanks to one and all.

Chapter 1

Introduction

1.1 Introduction and structure of this thesis

This thesis will aim to develop a practical and readily accessible approach to the problem of predicting corporate financial performance, particularly the impending likelihood of possible financial distress or failure. Although much work has been done in this area by other researchers, the approach in this thesis will be unique, providing a tool which will offer valuable support to practitioners in their quest to enhance company-performance assessment.

The thesis will be structured as follows. Chapter 1 will introduce the topic background and lay out the structure of the thesis. Justification of the research will be established in conjunction with consideration of why there has been, and remains, so much interest in trying to measure and predict business failure. The purpose and objectives of the thesis research will be discussed, and the concept of a new approach to financial modelling introduced.

Chapter 2 will review the extensive body of literature in the general area of corporate-failure prediction that has been produced over the past 40 years. It will focus on the key discussion areas of the concept of “failure”, development of the early models and subsequent variations, the perceived deficiencies of these approaches, the impact on model reliability of accounting flexibility and possible

manipulation of financial information (leading to what is sometimes referred to as “creative accounting”), previous work on multi-dimensional models, particularly in an Australian context, the problems involved with predicting failure, and, lastly, challenges to the effectiveness of predictive models. The information obtained from the literature review for this chapter partly forms the basis for development of a new modelling approach, as one of the key objectives will be to address some of the perceived deficiencies of existing techniques identified in previous literature. This new approach will be applied in Chapter 5.

Chapter 3 will first discuss the methodology to be applied in the research for this thesis. It will start with a discussion of the appropriateness of a modelling approach to predict potential financial distress or failure, and the associated reliance on company annual-report information. Failure-definition criteria will be examined and defined, and background provided to the processes of database selection and data extraction, including analysis of source documentation. The chapter will conclude with an introduction to the application of the model; this will be expanded in Chapter 5.

In Chapter 4, a brief background will be provided for each of the companies listed in the database of failed and non-failed companies. The data obtained from these companies will be used in the construction of the model to be applied in Chapter 5. This will be the chapter of primary importance for the thesis, as it will discuss the development and application of the model and report on the results achieved. It will also discuss the statistical approach and provide detailed explanation of the process

followed in the model development and application. Output from the model will be analysed and the findings summarised.

In Chapter 6, the final chapter, conclusions will be presented on the findings delivered in Chapter 5 and discussed in the context of the objectives established in Chapter 1. Finally, consideration will be given to possible future avenues for extended research based on the groundwork presented in this thesis.

1.2 Background and justification: why the interest in trying to measure and predict business failure?

With the well-documented history of trauma arising from business-failure events over the past 50 years, it is not surprising that a substantial amount of research effort has been devoted to the development of means to help predict such events. It has long been recognised that a reliable financial failure-prediction model could assist in the analysis of a company's potential survival risk. However, although the use of financial ratios for business-performance analysis has been common practice for some considerable time, using them in a model format for predicting corporate failure is generally recognised as beginning only in the late 1960s. The two notable works of that time were Beaver's univariate approach (1967) and the seminal work of Altman's Z-score (1968) using multiple discriminant analysis (MDA). The latter, in particular, has served as a catalyst for extensive subsequent research and literary discussion, mostly dealing with variations and perceived improvements to successive predictive models using ratios derived from reported financial results.

Although models such as Altman's Z-score have proven their usefulness to analysts and practitioners alike, they have also been extensively criticised. Much of this criticism evolves from their sole reliance on ratios derived from the accounting information contained in financial reports. Most existing models assume a fairly rigid treatment of accounting information by producers of company reports, with little room for subjectivity, window dressing or creative accounting. Chapter 2, Section 5, will review previous literature to assess the perceived impact of these factors on the reliability of the accounting data used for the financial ratios comprising many of the current models.

Attempts to improve reliability have seen the development of far more sophisticated models that use a variety of statistical techniques. Due to their complex nature and/or difficulty of data sourcing, they are not easily used by the average practitioner or financial director. For example, the Z-score variant Zeta model by Altman (1977) was developed as a proprietary product and is inaccessible to practitioners or academics without subscription. This severely limits its widespread application, as well as restricting access by researchers who may wish to test its robustness against the claims of its promoter.

Some models have recognised the importance of cash-flow measurement; others have recognised the value of incorporating non-financial factors. However, what appears to be missing is a product that comprises components of a relatively simple, accessible and effective financial Z-score type model, supplemented by a measurement of cash flow/position (ignored by Altman but generally accepted in the

modern business environment as being an important factor for survival), and further supported by some elements of a generally non-financial nature that signal the predictability of increasing exposure to failure risk.

Therefore, a gap exists in the research when it comes to recognising this type of tri-dimensional approach. Although some attempts have been made to develop models that incorporate a combination of financial and non-financial factors, there does not seem to be at this stage any comprehensive attempt to specifically address deficiencies of existing models. In Chapter 2, previous literature will be reviewed with the objective of identifying the key perceived deficiencies. This will form the basis for constructing an improved approach to modelling the level of a company's risk exposure to a potential financial-distress event.

1.3 Purpose and objectives of this investigation

Working on the premise that there should be indicators that help to remove some of the reliance on guesswork in predicting corporate performance, this thesis will build on earlier research and produce an approach that is more workable and easily understood, and with more widespread practical application than those currently available. This will be a new approach, one that attempts to adjust for deficiencies of previous approaches and to use a group of components that, as a whole, do not rely so much on interpretative weighting or contestable data that they affect the robustness of the predictions. The result will be the construction, development and ultimate presentation of a tri-dimensional model, with specific application initially to the Australian business environment.

Contributing to this overall purpose, the following areas will be specifically addressed in Chapter 2:

- A review of the different interpretations of the term “failure” as applied to businesses; this concept needs to be established before a valid attempt can be made to predict it through modelling.
- A review of the similarities and differences in the approaches taken to predictive modelling so far.
- A review of the perceived key deficiencies of existing models identified in the literature, including the impact of creative accounting.
- Recognition of concerns about the predictive capacity of models in general.
- An evaluation of arguments for and against the inclusion of non-financial data.

Objective of the modelling approach for this thesis

Recognising the well-documented shortcomings of existing models to be discussed in Chapter 2, Section 4, it is intended that a new modelling approach will be presented in this thesis that will attempt to fill existing gaps in the research by taking a tri-dimensional perspective, comprising a combination of scoring for financial (accounting-ratio-based and cash-flow-based) and non-financial factors. With the introduction of non-financial variables also comes the introduction of a higher degree of subjectivity. Lussier (1995) developed a success-versus-failure model for young firms comprising 15 variables (capital, record keeping and financial control, industry experience, management experience, planning, professional advisors,

education, staffing, product/service timing, economic timing, age, partners, parents, minority, marketing) and noted how reliant the model was on the assignment of probabilities of success to each of these variables. In doing so, however, he also acknowledged that previous studies had cited managerial variables as being critical and had indicated that qualitative data can provide at least as good predictions as traditional financial ratios (Storey, Keasey et al., 1987; Scherr, 1989). Due to the inherently subjective nature of a non-financial interpretative approach, it is proposed that the model presented in this thesis will largely rely on a consolidation of financial indicators widely supported in previous literature. The multiple discriminant analysis (MDA) approach used by Altman (1968) as a basis for Z-score model calculations that lead to a failure/non-failure prediction based on company data will contribute four accounting ratios.¹ It is expected that the literature reviewed in Chapter 2 will also contribute to the selection of key cash-flow ratios and failure indicators relating to overtrading and excessive gearing, supplemented with components of non-financial information obtained from both internal and external sources. The logistic-regression approach proposed will deliver a probability score indicating the likelihood of failure. It is expected that the model construct can be largely based on the following format:

Potential Failure Indicator (PFI) = F1 (Z-score-based accounting ratios) + F2 (cash-flow components and indicators of overtrading/excessive gearing) + F3 (a non-financial score based on both internal and external factors).

¹ Working Capital/Total Assets, Retained Earnings/Total Assets, Earnings Before Interest and Taxes (EBIT)/Total Assets, Market Value of Equity/Book Value of Debt (refer discussion of Z-score in Chapter 2, Section 3, and model components in Chapter 3, Section 7).

The final structure of the model will evolve in response to the analysis of the findings delivered in Chapter 5.

Financial Factor Scores (F1 and F2)

Z-score has become somewhat of a generic term over the past few decades. Coined by Altman for his original model in 1968, the term is now used to describe most models using the Multiple Discriminant Analysis (MDA) approach adopted by Altman. Therefore, we now have numerous Z-score models by various authors, including a number of variations produced by Altman himself. Models have been adopted for different industries and countries, so the concept of a modified Z-score is not new. Altman and Narayanan (1997) note that, rather than attempting a causal study of failure, almost all the previous studies attempt to draw conclusions about the coincident factors of failure. They also note that MDA continues to be the most popular technique. For the PFI model proposed in this thesis, it is intended to use a group of variables based on accounting ratios used in the Z-score models but, in addition to these, to accept previous research advocating the recognition of cash/cash-flow, and to add scores reflecting measurement of two of the three mistake factors identified by Argenti (1976), excessive gearing and overtrading.

In the absence of any general agreement in the literature on the best set of financial ratios for failure prediction, it is proposed to use components of the frequently tested and proven original Z-score of Altman, but to recognise some real-world pragmatics that have become evident during its lifetime (Altman 2000). This will lead to an emphasis on what is termed the Zii variant of the model, as discussed in Chapter 2, Section 3.

The determination of the cash-flow measures to be included in the model will initially rely on the work performed by researchers to derive a group of three key ratios: cash flow from operations to total debt (CFFO/TD), cash flow from operations to total cash inflows (CFFO/TCI) and cash flow from operations to current liabilities (CFFO/CL).

The key mistake factors identified by Argenti (1976), and supported in subsequent research by Mearns (1991), were the existence of a (failed/failing) major project, high gearing and overtrading. Possible problems with a major project may be detectable through the non-financial factors discussed below, but the other two mistake factors should be identifiable by financial measurement. High gearing can be detected through considering the ratios total liabilities/total assets and loan capital/shareholders capital. A stand-alone assessment at a single point in time would be regarded as satisfactory but, ideally, a looming problem could be even more clearly illustrated through a trend assessment derived from sequential measurement over a number of years. Overtrading can be detected by an upward movement in

Fixed Assets and Inventories, coincidental to a decline in liquidity as measured by net cash (cash and deposits plus short-term investments minus bank overdraft).

Non-financial factors (NFS)

In addition to the financial information in a company's financial statements, other valuable information can be obtained from internal sources. Although there may be other sources, such as company announcements and subscription-based internet sites relating to business analysis, the most readily accessible information for research purposes is likely to be that provided by a company's annual report². This can contain a wealth of information including policies on accounting treatments, possible indicators of attempts at "creative accounting", contingent liabilities such as outstanding legal cases or potential tax liabilities, investment strategies, indicators of the CEO's role, composition of the board, financing and dividend policies, market factors, other areas of possible risk exposure (such as overseas-trade reliance linked to overseas market conditions), and auditors' comments, in particular the issue of a qualified report.

It is also possible to identify a number of potentially relevant external factors that may act as indicators of potential health/failure. Some of these could be analysts' comments, "rumours" of possible problems (principally from the financial press), unusual movements in market price and changes in credit ratings.

The relevance of these types of factors to the likely future performance of an organisation will be discussed in the Chapter 2 literature review. Based on this

² The reliability of annual reports is debated in Chapter 3.

relevance and the availability of information from the annual report and external sources, factors will be rated, with the view to contributing to a subjectively derived non-financial score (NFS). Any purported relevance claimed by previous literature for a given type of factor will be supported or challenged in Chapter 5 when the model is tested and the test results analysed.

1.4 Conclusions

The basis of the supporting argument, therefore, can be provided in the following list of points that summarise the justification and approach for this thesis research:

1. A reliable mechanism is required to help assess companies' financial viability or potential financial failure, due to clear empirical evidence of the regularity of business distress and the cyclical nature of increased incidence of corporate collapses.
2. Although a number of models have been developed over the past 40 years with the objective of detecting potential corporate failure, most of these rely solely on the results of financial/accounting ratios.
3. There are numerous and widespread criticisms of the models developed so far, mainly arising from their reliance on information provided by company reports, their exposure to the potentially distorting influences of

creative accounting and their failure to recognise a range of other relevant indicators.

4. Factors such as cash flow and non-financial criteria have been recognised as having substantial predictive capability, but have not been considered in many of the models.
5. Attempts to improve predictive capability have resulted in proprietary products or models that rely on complex statistical techniques that are not accessible to the broad range of practitioners and analysts.
6. Deeper research shows that flaws exist with these models, particularly as they are applied to certain types of industries.
7. The most widely known model is Altman's original Z-score, along with its range of subsequent variants by Altman and co-researchers, proprietary variants such as Zeta and related Z-score products such as developed by Taffler (1982); however, although Z-score is acceptable in principle, it will be shown to be insufficient by itself due to its narrow definition of failure, fundamental flaws in its application and consistent criticism of its sole reliance on accounting ratios.
8. A gap in the research exists due to the lack of any apparent attempt to specifically identify and address the key criticisms of existing models in the literature.

9. This thesis will attempt to fill this gap by constructing and testing a model that is robust and capable of being used by practitioners and analysts, and that builds on the groundwork established by existing models by specifically addressing a range of identified deficiencies; however, although the development of the model will attempt to identify and compensate for flaws in existing models, with the objective of providing a product with enhanced integrity and accuracy, the results provided by the model still need to be taken in the context of specific company issues.

Chapter 2: Previous Debate and Literature Review will review some of the extensive range of contributions to literary research in the key topic areas relating to the prediction of corporate failure. The information obtained from this literature review will be used to assist in establishing the framework for an improved approach to failure prediction and will contribute to the construction of the model proposed as the primary supportive tool.

Chapter 2

Previous Debate and Literature Review

2.1 Introduction

The objective of this chapter is to review the previous research literature on corporate failure and, from that review, establish the basis for developing the modelling approach presented in Chapter 3 and analysed in Chapter 5. Prediction of corporate failure has been a well-researched topic since the late 1960s; consequently, there exists a plethora of related research expounding a range of supporting and conflicting views. One problem, therefore, has been the selection of a range of relevant literature to provide the basis for a fair analysis of the broad cross-section of opinion. It is recognised that not all opinions or views may be represented in this chapter but, for the purpose of this thesis, it is believed that the more than 300 articles listed in the reference list and bibliography overwhelmingly reflect the key areas of discussion in this area over the past 40 years. This belief is based on the amount of research literature produced in these key discussion areas, although by necessity, only a sample of these, particularly in the discussion of existing models, can be selected for this literary analysis.

Having identified the key discussion areas, this chapter is structured along related thematic lines. These cover the definition of “failure” as a concept in corporate

performance¹; the development of earlier models and variations on those models derived over time; the perceived deficiencies of those existing models (leading to how these deficiencies can be addressed in the formulation of a different modelling approach); the problem of “creative” accounting (such as the overstatement of net earnings arising from deliberate manipulation of financial results, or simply the favourable interpretation of flexible accounting standards); the consequent impact on the reliability of models based on the financial figures so derived; previous work done on the multi-dimensional approach to modelling; and previous research in the Australian context (as the model to be proposed in this thesis is to be initially applied to the Australian business environment only). Finally, given all the inherent problems discussed in this review, the question is posed as to whether a modelling approach can be an effective means of predicting general corporate performance, and specifically, corporate failure.

2.2 Defining the concept of “failure”

Empirical evidence indicates that prediction accuracy can vary with the definition of failure (Bahnson and Bartley, 1992); this emphasises the need for a definition that is sufficiently robust and consistently applicable. When attempting to develop a model to predict the likelihood of a failure, a problem exists if that failure is not adequately defined. From the discussion that follows, it seems fairly clear that there is a distinct lack of agreement on a common definition of failure. This only emphasises the need,

¹ The wide variations in the definition of “failure” as applied to pre-existing models results in a situation where one is considering “apples and oranges” in trying to assess relative performance, and is one of the reasons for the fresh approach being adopted in this thesis.

in the absence of any such agreement, to clearly enunciate the definition of failure on which this model is being developed.

Altman and Narayanan (1997) recognise that a definition of failure can vary depending on local conditions or even the inclination of the researcher. Failure could refer to events such as a company filing for bankruptcy, bond default, delisting of a company, government intervention via special financing, and liquidation. Bahnson and Bartley (1992) showed that a model that does well at predicting bankruptcy does not necessarily perform well at predicting failure as defined in broader terms. Their research confirmed that failure-prediction models can be sensitive to the definition of failure employed and noted that future studies should give greater attention to how failure is defined.

It can be argued that a company should not be classified as having failed simply because it delists by way of merger or even simply because the decision is made to wind down the company. In the United States most discussion of potential corporate bankruptcy involves consideration of Chapter 11 and/or Chapter 7 categorisation.

A Chapter 11 failure under the United States bankruptcy code is a form of bankruptcy that involves a reorganisation of a debtor's business affairs and assets. It is generally filed by corporations that require time to restructure their debts, and gives the debtor a fresh start, subject to the debtor's fulfilment of its obligations under its plan of reorganisation. Chapter 11 bankruptcy can also be called rehabilitation bankruptcy because it allows the firm the opportunity to reorganise its debt and to try to re-emerge as a healthy organisation. The firm will typically need to contact its creditors

in an attempt to change the terms on loans such as the interest rate and the dollar value of payments. A trustee needs to be appointed but, rather than selling off all assets to pay back creditors, the trustee supervises the assets of the debtor and allows business to continue. The debt is restructured, not absolved, and the firm must continue to pay it back through future earnings. Therefore, if a company is successful in Chapter 11, it will typically be expected to continue operating in an efficient manner with its newly structured debt. If it is not successful, it will file for Chapter 7 and liquidate. In both instances, common shareholders will most likely see little (if any) return on their investments.

Chapter 7 bankruptcy is sometimes also called liquidation bankruptcy. It is a bankruptcy proceeding in which a company stops all operations and goes completely out of business. Firms experiencing this form of bankruptcy are past the stage of reorganisation and must sell off any non-exempt assets to pay creditors and investors. A trustee is appointed to liquidate (sell) the company's assets and the money is used to pay off debt.

The argument can be put that a company should not be categorised as “failed” simply because it applies for Chapter 11 protection, which effectively provides some “breathing space” for the business to avoid bankruptcy through processes such as restructuring its balance sheet. However, a United States study by Lussier (1995) adopted the Dunn and Bradstreet definition whereby business failures were defined as firms involved in court proceedings or voluntary actions that result in losses to creditors. Chapter 7 and Chapter 11 companies were both considered failures because losses to creditors typically occur under both scenarios. Firms going out of business

without loss to creditors were simply considered to be discontinued businesses rather than failures.

Other definitions of failure help to illustrate the diversity of interpretation. Altman's definition of failure, accompanying the presentation of the original Z score (1968), adopted a narrow definition that included Chapter 7 filings only. Taffler and Tisshaw (1977) defined failed firms as those entering into receivership, creditors' voluntary liquidation, compulsory winding up by order of the court or government action in the form of bailouts as an alternative to the other three events. Holmen (1988) only included data from firms that had actually filed for bankruptcy, whereas Richardson (1994) regarded failing organisations as all those that would become insolvent unless appropriate management actions were taken to effect a turnaround in their financial performance. Neophytou and Mar Molinero (2004) looked at the broad categories of receivership, administration and liquidation as the most common forms of failure.

Kane et al. (1996) accepted that researchers disagree on a commonly accepted definition of corporate failure, but chose the broad interpretation of a Chapter 7 or Chapter 11 bankruptcy petition filing so as to allow for a maximum number of observations. Given the broad range of definitions, it makes practical sense to use a broadly acceptable definition that facilitates access to available data for research purposes. In doing so, however, it needs to be recognised that variations in definition may compromise the viability of the resulting models.

Taking an Australian perspective, failure has been defined by Sharma and Iselin (2003) as "companies entering involuntary receivership and involuntary liquidation" (p.1,120). This is consistent with prior by Castagna and Matolcsy (1981) that focuses

on Australia; this research excludes voluntary liquidations from the definition because, under Australian Corporations Law, such liquidations are only permitted if a company is able to pay its debts upon liquidation.²

Although the literature reviewed does not provide a consensus on the definition of failure, it is clearly necessary to adopt an acceptable compromise that will provide a basis for model construction. Although a number of the arguments discussed can be accepted as valid in a broad context, there are distinguishing factors that may warrant consideration when narrowing the discussion to an Australian perspective. Some of these include the resource-dependent nature of the economy, the degree to which its relatively small size leaves it susceptible to movements in other major economies, differences in tax and accounting treatments and, in particular, the absence of a direct equivalent to the United States Chapter 7 or Chapter 11 and the legislative exclusion of voluntary liquidations as perceived failure events.

² There is a distinction in Australia law between the winding up of a solvent versus an insolvent company. Sharma and Iselin's comments appear to relate predominantly to the former. In their article "The Relative Relevance of Cash Flow and Accrual Information for Solvency Assessments: A Multi-method Approach" in the Journal of Business Finance and Accounting Volume 30 of September/October 2003, they state on page 1120 that "consistent with prior Australian failure prediction research (eg. Castagna and Matolsky, 1981; Izan, 1984; and pacey and Pham, 1990), failure was defined as companies entering involuntary receivership and involuntary liquidation. Voluntary liquidations were not considered because they are permitted only if a company is able to pay its debts upon liquidation (Section 494(1) Corporations Law)."

The Australian Securities and Investment Commission website (www.asic.gov.au/winding up a solvent company) states that to commence a voluntary winding-up, the majority of directors must sign a declaration that the company can pay its debts in full within 12 months and, if this declaration is subsequently found to be without substance, a penalty of \$5500 or 1 years gaol can be applied under Section 494. However, the ASIC site also recognises that, if it becomes apparent that the company is insolvent, directors should not allow it to accumulate further debt and should appoint a voluntary liquidator or administrator.

The distinction therefore lies in the financial position of the organisation. If it is financially solvent, it should not liquidate unless all debts can be met within the required timeframe. Quite correctly, Sharma and Iselin, along with a number of previous researchers, have excluded instances of this form of voluntary liquidation of a healthy company.

All these could lead to the conclusion that the definition applied by Sharma and Iselin represents a valid description of corporate failure and is an appropriate basis for failure-criteria determination in the Australian context. However, research indicates that the failure phenomenon can be much broader and appear even earlier than suggested by the Sharma and Iselin or Castagna and Matolcsy approaches. Therefore, in the discussion of failure definition in Chapter 3, recognition will be given to the fact that the concept of failure is broad, and can range from a company delisting due to financially induced requirements to restructure or merger, right through to a final liquidators' declaration giving rise to capital loss and ultimate deregistration. It will be argued in this thesis that such a definition should not be confined to a simplistic failed/non-failed position based on a bankruptcy result, as advocated by most of the Z-score-based models, but instead should recognise that failure can take many forms prior to reaching the final stage of bankruptcy. A sole reliance on the bankruptcy result can actually compromise the integrity of results returned by models because it misses a range of preliminary circumstances that constitute indicators of a valid failure.

Therefore, it will be proposed in Chapter 3 to use a broad definition to determine the failure event for application in the model developed in this thesis. This approach will regard corporate failure as a process, not an event. Although failure may be evidenced by events such as delisting or bankruptcy, it could be argued that at least three levels of failure categorisation exist on the continuum, as described in Chapter 3, Section 2. It is also accepted that any future extension of the model application

beyond the Australian perspective, and beyond the current limited GICS³ grouping analysis, may involve further review of failure defining criteria.

2.3 Development of early models and subsequent variations

Although ratios derived from reported financial figures have been extensively used by accountants over many years to assist with analysing businesses' financial performance, the pioneering of bankruptcy-prediction models is generally agreed to have occurred with Beaver's univariate test (1967) and Altman's multivariate discriminate analysis (1968) leading to the Z-score model. Both of these models sought to relate specific levels, or combinations, of accounting ratios up to five years before bankruptcy to the occurrence of the actual bankruptcy, and documented that financial variables could be used to predict bankruptcy. The inconsistency and predictive conflict arising through the use of a singularly observed ratio in Beaver's univariate approach was thought to be largely overcome through a multiple discriminatory analysis (MDA) approach, as used by Altman, which attempted to group selected ratios into a model to produce a single output or score that could be used as a basis for predictive assessment.

In his 1968 study, Altman evaluated a sample of 33 failed firms and 33 successful firms, matched on the basis of industry and size. This sample of 66, which formed the basis for development of the widely adopted Z-score model, may appear somewhat limited in size; nonetheless, it still provided a statistically significant matched

³ GICS is the Global Industry Classification Standard, a global standard for categorisation of companies into key economic sectors. Discussed in Chapter 3, Section 3.

database for applying MDA. Indeed, in the extensive review of the literature in this thesis, there has been no challenge to the database used by Altman for his Z-score model development. Although 22 ratios were initially selected, only five remained in the final discriminant function known as the Z-score model. Whilst Altman acknowledges the importance of establishing an objective approach to allocation of weights (2000, 2002), his explanation of how this is achieved is difficult to locate, apart from a passing reference to the software (not named) used for the statistical analysis of the input from the datasets. (A similar weighting-allocation process is applied by the SPSS package used for the logistic regression analysis of the datasets in this thesis, but hopefully the explanation of the process provided in Chapter 5 is of substantially more value).

The initial Z-score model took the following form:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Where X_1 = working capital/total assets.

This measures liquid assets in relation to the firm's size. Philosophov (2002) showed that, as a firm approaches bankruptcy, there is a noticeable increase in its current liabilities relative to assets, and this should be detected by the X_1 factor or a similar one he also proposed. Altman believed that this measure was superior to current and acid-test ratios. The more recent move to a greater recognition of cash-flow factors as a separate and distinct predictive indicator is discussed in Chapter 2, Section 3.

Where X_2 = retained earnings/total assets.

This is a measure of cumulative profitability that reflects the firm's age as well as earning power. Some studies have shown failure rates to be closely related to the age of the business.

Where X_3 = earnings before interest and tax/total assets.

This is a measure of operating efficiency separated from any leverage effects. It recognises operating earnings as a key to long-run viability.

Where X_4 = market value of equity/book value of debt.

This ratio adds a market dimension. Academic studies of stock markets suggest that security-price changes may foreshadow upcoming problems. (This measure can also be supplemented by a factor indicating price movement relative to the main market index, as proposed in the F_i component of the model discussed in this thesis).

Where X_5 = sales/total assets.

This is a standard turnover measure, but the research shows that it varies greatly from one industry to another and is likely to under-predict bankruptcy as companies become less capital-intensive. For this reason, the X_5 factor is excluded by some researchers. Testing of the ratio by Philosophov and Philosophov (2002) led them to conclude that it had low prognostic potential and to state that Altman's arguments for its inclusion in the original model were unconvincing. Altman (1983) also subsequently recognised the inter-industry variability problem and removed the ratio from a modified Z-score for non-manufacturing entities:

$$Z_{II} = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Both Eidleman (1995) and Philosophov (2002) contend that the X_5 measure should be excluded due to its low predictive value and industry variability. Altman's subsequent work (2002) acknowledges at least the variability issue and, for the purposes of the proposed model for this thesis, it is intended to use only the components of the Z_{II} modified approach as contributing factors.

The predetermined Z-score cut-offs for the original model were <1.81 , indicating bankruptcy, and >2.99 , indicating financial viability. The area in between was referred to as the zone of ignorance. Cut-offs for the Z_{II} model were <1.1 , indicating bankruptcy, and >2.6 , indicating financial health. The lower the score, the higher are the odds of bankruptcy. With the original model, a Z-score of lower than 1.81 indicates that the company is heading for bankruptcy. Companies with scores above 2.99 are unlikely to enter bankruptcy. Scores between 1.81 and 2.99 lie in a grey area. An example of this application is America's largest corporate collapse, WorldCom which, despite now well-documented accounting manipulation practices that falsely inflated earnings, had Z-scores of 2.5, 1.4 and 0.85 in the three years preceding its collapse in 2002.

Model Development Post Z-score

Subsequent to the development of the initial Z-score model, prediction of corporate failure has continued to be a topic of considerable interest. Altman, in conjunction with a variety of co-researchers, continues to be a prolific writer in this area. Although his seminal work has frequently and regularly been cited in much of the subsequent literature, there have been many other contributions (which are discussed

below). All of these acknowledge the importance of Altman's initial work, but some either dispute the integrity of the model developed, or at the very least offer suggestions for improvement.

Subsequent work has extended the line of research into key areas of statistical techniques, definitions of bankruptcy and a greater variety of explanatory variables.

Models developed since the original Z-score include:

1. Zeta (an enhancement of Z-score) (Altman, 2000)
2. CAMEL (mainly applied to financial institutions; the acronym is derived from the following components: **C**apital adequacy, **A**sset quality, **M**anagement competence, **E**arnings and **L**iquidity) (Gasbarro, 2002)
3. Panel data methodology (Hunter, 2003)
4. Regression analysis tools such as Probit and logistic binomial analysis (Westgaard, 2001; Musa, 2004; Johnsen, 1994)
5. Neural networks (Luther, 1998; Calderon, 1999; Zapranis, 2000; Anandarajan, 2001; Swicegood, 2001; Shah, 2000; Gritta, 2000)
6. Rank transformations (Kane, 1998)
7. Cumulative sums (CUSUM) (Kahya, 1999)
8. Utilities additives discriminants (UTADIS) (Zopounidis, 1999)
9. Recursive partitioning (McKee, 2000)
10. Survival analysis (Chen, 1993; Suarez, 1995; Turetsky, 2001; Parker, 2002)

These models have attempted to improve on Altman's initial works, often through use of sophisticated computer programs, but sometimes simply by building on to the

original model, making adjustments for additional factors that are considered important or tailoring specific models for specific industries. The overriding feature in most of the models, however, remains the reliance on accounting data derived from annual reports. This issue, discussed in Chapter 2, Sections 4 and 7, is to many writers a potential problem compromising model reliability.

Model categorisation

The models that have evolved in the literature over the past 35 years can generally be categorised into two main groups:

1. Group A – Z-score based, with some refinement.
2. Group B – those that, although they may accept the philosophy of financial ratio analysis derived from company-produced financial reports, take a substantially different approach to the Z-score methodology applied by Altman, and/or advocate a much greater emphasis on the consideration of cash-flow analysis and/or non-financial factors. This category covers the majority of the model types listed above, except for the Zeta variant, which is a derivation of the Z-score approach.

Group A

Despite the preponderance of new model development moving away from the initial Z-score approach, the literature relating to Group A indicates that Altman's Z-score model remains a popular tool for calculating potential company failure. This does not mean, however, that even amongst supporters (such as those discussed below) there are not suggestions for continuing improvement. Wilson (2000) appears generally

supportive but claims that the availability of some payment-history data is far more predictive than accounting data alone and, by its very nature, also incorporates some non-financial data (such as age of company) that assists in the predictive process.

Altman (1979) adjusted the model to accommodate local accounting standards when he looked at the failure of Brazilian firms during the period 1973-76. Using the adjusted Z-score model a prediction success was achieved of 88% one year out and 78% three years out.⁴

Robbins and Pearce (1992) show that Z-scores can be used for more than just predicting financial failure. Investigating retrenchment as a component of the turnaround process for firms showing signs of financial distress, they were able to conclude that the Z-score improved for those companies that followed a retrenchment strategy for more than 12 months. Thus it was used as a measurement benchmark to detect favourable/unfavourable movements in financial viability as a result of pursuing a particular strategy for recovery.

Gardiner (1996) examined the ability of discriminant analysis to accurately predict hospital failure, and concluded that the predictive capability exists for both public and private institutions.

The importance of failure prediction in the audit process and the responsibility of auditors to report accurately on the audited company's going concern position was discussed by Citron and Taffler (2001). Their article heralds a concern that an actual

⁴ "One year out" refers to the use of financial data from the year immediately preceding the year of failure, which, by Altman's interpretation, is reflected by the company entering a state of bankruptcy. Similarly, "three years out" refers to data from the third year preceding the year of failure.

audit warning may precipitate a self-fulfilling collapse, but their research shows that the degree of financial distress, rather than the actual warning itself, is the key issue in the ultimate decline. Taffler in particular is well-known for his work on Z-scores for predicting corporate performance and failure in the United Kingdom (Taffler and Tisshaw, 1977; Taffler, 1982, 1984, 1995).

Spathis (2002) has performed some interesting analysis of published data leading to the development of a model that attempts to detect false financial statements in Greece through a combination of traditional Z-scores plus an additional nine ratios, all fed into a logistic regression model. He acknowledges fraud as a potential cause of financial failure but does not provide evidence of the extent of impact. He covers some of the means of manipulating profits, such as overstatement of revenues, understatement of expenses and overstatement of assets, and intertwines this issue with the related problems of auditor function and Board membership.

This view is supported by Hall (2002), who discusses the issue of whether financial statements fairly present the financial position, the potential impact of creative accounting and the ways this creative accounting can be applied. He concluded by saying that Altman's model cannot be used in most cases because the model only included manufacturing firms, and other types of firms will have different relationships between working capital and other variables. Also, Altman studied bankruptcies between 1946 and 1965, contending that the weights derived then from application of the company data to the statistical model would probably be different now with a different set of company data. In a more recent article, Altman (2000) reviewed the original model and reassessed the weightings. In tests of 86 failed

companies from 1969-1975, 110 bankrupts from 1976-1995 and 120 bankrupts from 1997-1999, the model achieved classification accuracy of 82 to 94% using data from one financial year prior to bankruptcy at the 2.675 cut-off level. However, as type 2 errors⁵ had increased by 15 to 20%, Altman advocated using the 1.81 lower limit of the zone of ignorance as the cut-off. This has the effect of reducing type 2 errors dramatically at the price of diminished overall accuracy. Year 2 results are typically in the range of 70 to 80% but, beyond that, Altman recommends moving to the 1977 Zeta model, which has demonstrated higher accuracy over a longer time. Although this model appears to have been derived from Z-score, unfortunately it is a proprietary effort designed for fee-paying clients, and the working components, such as model factors and weights, are not generally available.

At the time he wrote this article (July 2000), the stock market was at its peak. Altman commented that the average Z-score for US companies had climbed significantly mainly due to the impact of stock-market prices on the fourth category of the model. He advocated a complete re-estimation of the model, substituting the book value of equity for the market value in the fourth variable. This required a change in all of the coefficients and a new model as follows:

$$Z' = 0.717(X_1) + 0.847(X_2) + 3.107(X_3) + 0.420(X_4) + 0.998(X_5)$$

The major stock-market correction that commenced in the middle of 2000 and continued for the next three years, and the even more dramatic one of 2008 (still

⁵ A type 2 error is the mistaken assessment of a successful company as failed or likely to fail. This error has the additional risk of being a “self-fulfilling prophecy” if stakeholders, particularly investors, suppliers or lenders, become aware of and react negatively to the prediction. A type 1 error is the reverse; i.e., a failing company is miscategorised as being successful (non-failing).

continuing in to 2009), could raise questions about the need for the change. Even in 2005, with the markets having recovered much of the ground lost in 2000 (and more, in the case of Australia), the question could still be asked about the relevance of book value for equity valuation. It could be argued, for example, that market value would be more relevant, as it provides an indication of the market's assessment of the ongoing viability and profitability of the company. Perhaps an emphasis on adjustment to the weighting factor, rather than substitution of the variable, would have been a more appropriate approach for Altman to have taken.

The model was further adjusted to accommodate some changes to accounting treatment and to allow for assessment of non-manufacturers and emerging markets.

The review of the literature has identified concerns about previously constructed models; this is expanded further in the next section. In the construction of the model for this thesis, these specific areas of concern have been targeted and used as a basis to build in appropriate compensating/accommodating factors for the identified major shortcomings. This is a process that does not appear to have been adopted previously, leaving gaps in the research which this thesis is intended to substantially fill.

Group B

The literature relating to Group B has generated the most academic discussion over the 40 years since Z-score was developed. Arguments vary in degree and content, and not only about the form of suggested overall superior predictive models, but also the need for development of specific models for specific industries.

Oswald et al. (1992) looked at models specifically developed for hospitals in the US, such as the Financial Flexibility Index and the Financial Viability Index. The first index concentrated on a set of ten financial ratios, whereas the second model, preferred by the authors, incorporated general financial performance ratios as well as specific information regarded as pertinent to the ongoing viability of health institutions. They claim to provide strong evidence that ownership status, location and level of service directly affect financial viability.

Traditional ratio analysis was largely ignored by Aghimien (1993), who evaluated the ability of capital-market information in predicting the potential failure of large commercial banks using a cumulative prediction error statistical technique. He also discussed the role of the auditor in forming a going-concern prediction, and claimed that information derived from the stock market is useful to auditors in this process. This concern about the responsibility attached to auditors and their ability to effectively make judgments on the issue permeates much of the literature that considers the audit role.

The behavioural aspects of financial-ratio analysis were examined by Shivaswamy et al. (1993). In the same article the authors studied the opinion of bankers regarding the importance of 43 financial ratios, mainly derived from the study of 13 bankruptcy-prediction models developed from 1966 to 1985, and using methods such as univariate analysis, multiple discriminant analysis (MDA), logit regression and probit regression. The bankers identified 19 ratios considered important in analysing retail firms and 14 for manufacturing firms. However, when these 19 were compared to the ratios actually used in the statistical models, there was not a lot of correlation.

Although the study identified the need to use a different basis of analysis for different types of industries, and although the study identified what it regarded as shortcomings in the traditional models, it would have been interesting to have followed this up with some more-detailed analysis of the relative success in predictive capability.

Poston et al. (1994) considered the different stages leading to failure and examined the usefulness of financial ratios in predicting failure. The authors were critical of traditional models because they tended to simply classify enterprises as either failed or successful, and didn't recognise that a failing company may be able to improve its performance. It was claimed that the various probit models were biased towards classifying ailing firms as turnarounds, whereas the Z-score model in particular was consistently biased towards classifying distressed firms as failures. According to the authors, this may result in a going-concern qualification that could inhibit the ability of managers to obtain financing required to expedite a turnaround, and therefore force the company into bankruptcy: a self-fulfilling prophecy. This is disputed in a later article by Citron and Taffler (2001), whose research indicates that the degree of actual financial distress is the key issue in the ultimate failure of the firm, not the auditor's going-concern warning.

In the same year, Sheppard (1994) developed an alternative model using logit analysis, looking specifically at the matter of diversified firms. In his study he concluded that the impact of a diversified firm may not be as important in determining the likelihood of failure as the simple profitability and solvency of the firm, regardless of the industry. He therefore disputed some of the arguments from other researchers

that called for adjusted variables measurement for diversified firms and different industries.

Kahya (2001) claimed that the predictive ability of models based on linear discriminant analysis (such as the Z-score) deteriorates over time because of the serial correlation of the financial variables used. Although he advocated moving to a model that overcame this, the article did not substantially progress beyond exploring some possibilities; further research could build on this. In a previous article, Kahya (1997) argued that working-capital-based funds-flow measures were superior to cash-based in failure prediction, but this view appears to lack support in the other literature reviewed.

Catanach (1996) applied the modelling discussion to audit-risk assessment for savings/loan research, and followed this up with a further article (Catanach and Perry, 2001) that examined survival models, as opposed to failure models, in the study of financial institutions. The authors acknowledge the reasonable performance of previous financial-distress predictor models such as discriminant analysis (Altman, 1977; Pentalone and Platt, 1987), conditional-probability models such as logit and probit (Berthatal, 1985; Rudolph and Hamden, 1988), recursive partitioning (McKee and Greensteen, 2000) and expert systems (Elmer and Borowski, 1988; Booth et al., 1989) but state that more needs to be done. Their model attempts to predict the length of time until financial distress manifests itself, rather than just determining a fail/non-fail scenario, and uses a combination of 23 variables across the broad categories of financial strength, performance, funding sources, asset quality and growth. Seven of these measure degree of change rather than a static position. According to Catanach

and Perry, survival-time models confirm that the above categories contribute to firm survival. When applied to financial institutions, this model generally has a more accurate classification success rate than other commonly used models. The Catanach and Perry model is largely finance-industry-specific, and could potentially benefit that industry by allowing regulators/auditors to concentrate on those organisations identified as having a survival risk

The CAMEL model

As the Catanach and Perry model is a relatively new concept, little coverage is apparent in academic journals to this point. However, it is likely that there will be further discussion, particularly in the context of how it compares to already entrenched banking/finance models such as CAMEL (Capital adequacy, Asset and Management quality, Earnings, Liquidity), a good description of which is provided by Bongini (2001). The CAMEL model is a hybrid of traditional MDA, probability analysis and non-financial information, such as quality of management, and has been successfully used for a number of years, most conspicuously in the Asian crisis of the mid-1990s.

Gasbarro et al. (2002) examined CAMEL ratings relating to the Indonesian banking crisis and concluded that, as CAMEL ratings are designed specifically for financial institutions whereas Z-score is more applicable to non-financial, CAMEL is more appropriate than Z-score to analyse the financial health of banks. They also argued that, although previous studies have concluded that a combination of publicly available information and CAMEL ratings can identify and predict problem or failed banks, the Indonesian banking decline indicated the need to incorporate a risk factor

to also measure the possible impact of systemic economy-wide factors for each economy.

Survival Analysis

In their research, Hamilton et al. (2002) claimed to be primarily concerned with the prediction of corporate survival rather than corporate failure. Although these approaches would appear to be complementary, this does represent a fundamental change in perspective from most of the previous research, which has tended to focus on the prediction of failure. The value of such a change in perspective is arguable but, in doing so, they applied conventional bank-lending ratios rather than prediction-of-failure ratios, and focused on analysing companies already in receivership to determine their potential for avoiding liquidation. Although their research makes a contribution to the overall discussion, their analysis has not been sufficient to provide conclusive results.

The financial performance of Thailand's financial institutions during the Asian crisis was investigated by Reynolds (2002), who used probit and logistic binomial regression as possible tools for forecasting failure. The balance sheets and profit and loss accounts of 91 financial companies during the period 1993-96 were examined. Of these companies, only 35 were still operating by 1997, and only 23 by 1998. Methodology focused on determining a probability of survival, whereas traditional ratio models concentrate on attempting to predict failure. The authors claim that the model is superior to traditional ratio-only models (such as Z-score) and that new accounting and auditing research is more concerned with probability of failure rather than just prediction. This view is supported by some of the other literature that

discusses models based on probability analysis through regression. However, the authors fail to address the fundamental issue of reliability of the financial data that forms the basis for the ratio calculations. This work follows on from previous study of the 1997 Asian crisis in Thailand (Tirapat and Nittayagasetwat, 1999), the findings of which indicated the importance of macroeconomic factors and concluded that the higher a firm's sensitivity to inflation, the higher the exposure to financial distress. Although this study recognised the importance of financial ratios as used by Altman and many others, it focused on the significance of a range of macroeconomic factors.

Chen and Lee (1993) examined survival analysis with particular emphasis on the oil and gas industry during the crisis of the early 1980s. They identified six significant factors, only three of which were financial. Using the premise that all businesses will eventually end so it is appropriate to look at how long they will survive, their study differed from the previous traditional approaches, which only looked at surviving/failing, and extended their survival analysis to focus on the study of how long a firm can survive in adversity. When comparing survival analysis with the traditional logit model, Chen and Lee found that the two models resulted in largely the same significant variables, and that both could be used for prediction, the main difference being that survival analysis provided an additional dimension through its ability to show the probability of a firm's endurance through a series of given time intervals.

Neural networks

Neural networks are a group of mathematical models that attempt to simulate the brain's learning activity. They have been applied extensively to bankruptcy-

prediction problems over the past 12 years and have been progressively refined and developed during this period.

Bansal (1993) and Curry and Peel (1998) compared neural-network models with regression analysis but with conflicting results, the first favouring regression analysis and the second neural networks. The latter, however, reflected the results of extensive research performed since the first study and is generally supported by later research. Luther (1998) also claimed to try to overcome the shortcomings of other predictive models by developing a neural-network methodology; in his article, he provided a comprehensive description of such a model, trained using a genetic algorithm and incorporating 13 financial variables with a standard three-layer network incorporating input, hidden and output. His conclusion was that neural networks can be “trained” to adjust to changing inputs, can be used to predict the outcome of Chapter 11 bankruptcy filing and are more robust than logit in predicting the outcome.

Other research supporting neural networks over alternative predictive models is discussed in articles by Zapranis and Ginoglou (2000), Shah and Murtaza (2000) who apply the model to the computer industry, Gritta (2000) who has developed a model specifically for the small-airline industry, and Swicegood and Clark (2001) who consider a hybrid of MDA, neural networks using artificial intelligence and professional human judgement in a study relating principally to the banking industry. In this last study the authors favoured neural networks but accepted that more research was required before a definitive conclusion could be reached. The overriding research opinion appears to be favourable to the neural networks approach which, Gritta claims, has “the ability to tolerate noise and missing data, self-organise

and learn, generalise from specific instances, and establish complex relationships among input variables”(Gritta, Wang et al., 2000, p.48).

Other models

Other models and issues that have been discussed over the review period include the use of recursive partitioning (McKee and Greenstein, 2000), the CUSUM (Cumulative Sums) methodology (Kahya and Theodossiou, 1999), asset specificity and financial leverage (Cushing and McCarty, 1996), rank transformations (Kane, Richardson et al., 1998) and event-history methodology (Hill, Perry et al., 1996).

2.4 Perceived deficiencies of existing models

While the Z-score model has been applied with reasonable success over the past 40 years, its deficiencies have been widely discussed in the literature. As already stated, most of the criticism revolves around over-reliance on accounting data, inadequate recognition of cash as a relevant component and the lack of consideration of non-financial factors. Numerous variants on the original format, even by Altman himself, have been presented in the literature to cover a wide range of applications. However, these Z-score variants still fail to adequately address the basic criticisms (to be discussed in the following section).

There is extensive literature reviewing the various types of models that have been developed for predicting business failure. With the MDA models such as Z-score (and

derivations thereof) that rely solely or principally on reported financial data as a prime basis for calculation, there are a number of well-documented perceived shortcomings. Some of these include the absence of consideration of cash flow and/or non-financial factors; the focus on failure rather than sustainability; the need for industry-specific or geography-specific model types; and the danger of flexible interpretation or manipulation of financial results leading to “window dressing” or inappropriately favourable reporting of financial position and/or performance.

(a) Absence of cash position or cash flow as a factor

Over the past 40 years, one of the consistent criticisms of Z-score has been its lack of consideration of cash flow. The relevance of cash-flow information for predicting bankruptcy was highlighted by Beaver (1967), who reported that the ratio of cash flows from operations (as calculated by net income plus depreciation/amortisation) to total debt had a higher classification correctness than the common forms of accrual measurement of financial viability. Holmen (1988) concluded that the simple univariate use of the ratio of cash flow to total debt predicted bankruptcy with fewer errors than the five-ratio Z-score proposed by Altman. The value of cash-flow measurement was also supported by Earl and Marais (1982), who regarded the single ratio of cash flow to current liabilities as being a successful discriminator. Sharma and Iselin (2003) point out that, because the accrual system provides management with opportunities for “window-dressing” their accounts, cash-flow information could serve as an alternative source because it provides fewer opportunities for such manipulation. They contend that, even if management faithfully reports the results of operations and financial performance, the presence of accruals, allocations and

transitory items would render accrual financial information less relevant for solvency assessment. Their study concludes that cash-flow information has greater information content than accrual information in the context of corporate liquidity and solvency.

Other views supporting the use of cash-flow measures have been contained in much of subsequent literature by authors such as Turetsky and McEwen (2001), Sharma (1995, 2001), Lee (1982) and Gilbert (1990). Pinches (1992) observed the growing reliance on financial ratios for predictive studies and identified seven major factors:

1. Cash position
2. Return on investment
3. Capital turnover
4. Inventory turnover
5. Financial leverage
6. Receivables turnover
7. Short-term liquidity

Selecting a ratio from each group would give researchers/analysts a set of financial ratios that are largely independent but represent the seven different empirical aspects of a firm's operations.

Turetsky and McEwen (2001) acknowledged the value of Altman's Z-score but regarded its single objective of predicting bankruptcy as a shortcoming. They considered bankruptcy as only the final stage of the overall process of financial distress and, in their examination of the earlier stages, recognised that the onset of financial distress can be indicated by a volatile decrease in cash flows from

continuing operations, reduction in dividend payments, technical or loan default and/or troubled debt restructuring. Like a number of other contributors to the debate, therefore, they advocated an increased emphasis on cash flow to supplement, rather than replace, the MDA approach.

Sharma (2001) was critical of Altman for not including cash flow as a factor and examined it as a key issue in predicting financial failure. His chronological analysis of 19 cash-flow models produced between 1966 and 1991 largely supported his view of cash flow as the key predictor but, although the studies generally concurred that cash-flow analysis was more accurate at predicting failure than accrual MDA, the results were also riddled with a number of conflicts. For instance, Lee's 1982 study of the Laker Airways collapse found that CFFO indicated failure three years before the event but profitability did not. Similarly, Gilbert (1990) concluded that cash-flow analysis, when added to an existing accrual model, improves the model's ability to deliver predictive accuracy, and Sharma and Iselin (2003) concluded that "cash flow information has greater information content than accrual information in the context of corporate liquidity and solvency" (p. 1,134).

However, other studies such as Viscione (1985) found that CFFO was not a strong indicator of financial distress, and Gentry et al. (1985) determined that the dividend component was the only significant cash flow variable, with CFFO being regarded as not significant.

Sharma's main criticism of accrual MDA was the potential impact of creative accounting on the reported accrual-based financial results used as a basis for the respective models. He referred to one case where a failing firm was deemed

successful under Z-score analysis due to the company engaging in window dressing through accounting-policy changes but correctly identified as financially distressed under cash- flow analysis.

Despite the above reservations, there is a strong body of support for ratios calculated from the cash flow-statement. The common view amongst the many supporters is that expressed by Mills and Yamamura (1998), who contend that, “when it comes to liquidity analysis, cash flow information is more reliable than balance sheet or income statement information” (p.53). Working-capital ratios can provide an indication of liquidity at a prior point, but cash-flow ratios can support other measurements by testing how much cash was generated over a period of time and comparing that to near-term obligations, thereby providing a dynamic picture of the available resources to meet future commitments. The following ratios have been identified by researchers as being particularly useful measurements:

(i) Cash flow from operations to total debt (CFFO/TD)

Beaver (1967) suggested that the ratio of cash flow to total debt, which measures a company's ability to cover future debt obligations, is the single best predictor of bankruptcy. His definition of cash flow equates with the modern classification of cash flows from operations; this ratio is supported in subsequent literature by authors such as Holmen (1988), Mills and Yamamura (1998) and Sharma and Iselin (2003), amongst others. This ratio is regarded as a measure of longer-term financial viability rather than a shorter-term solvency measure as provided in (iii) below.

(ii) Cash flow from operations to total cash inflows (CFFO/TCI)

Sharma (2001) contends that, if a company is on the verge of bankruptcy for financial reasons, it would be reasonable to expect to see declining operating cash flows and increasing cash inflows from financing and investing. The classic example of this was the case of the Australian company OneTel before its final demise. Despite declining profits and negative cash flows from operations in the final two years before collapse, total cash inflows had increased purely due to cash injections by key investors.

(iii) Cash flow from operations to current liabilities (CFFO/CL)

This is a measure of short-term solvency and shows a company's ability to generate sufficient resources to meet current liabilities, including the current portion of long-term debt maturities.

Whatever the preceding contributing factors may be, most failing businesses ultimately fail because of inadequate cash flow, leaving them incapable at a critical moment, of meeting commitments such as payments for goods and services or debt repayment. Businesses today face an increasingly competitive environment with tighter margins and an increased focus on working-capital management. The emphasis on cash flow is evidenced by the worldwide focus on cash-flow reporting built into accounting standards over the past 15 to 20 years. The literature discussed above largely supports the view that some measure of cash position and/or cash flow

is far too important a factor to ignore in the construction of any model purporting to assess the financial success or potential failure of a business.

This literature also indicates that cash-flow analysis may introduce an added degree of objectivity and possibly reduce the potential effect of window dressing and creative accounting. However, using cash-flow calculation as a basis is an important issue. The main criticism of cash flow in the literature almost exclusively revolves around the sole use of CFFO if it is calculated simply through application of principles of accrual accounting. This increases exposure to the potential impact of creative accounting and reduces the credibility of the fundamental argument in favour of cash-flow analysis over accrual MDA. However, this criticism is substantially removed where CFFO is incorporated in a ratio measurement with other factors, as in the examples above, and/or it is used in conjunction with measurements of cash position.

There are numerous case studies (Lee, 1982; Gentry, 1987; Lucas, 2002; Murty, 2004) where traditional ratio analysis on its own has failed to detect a looming liquidity crisis that would have been detectable through a cash-flow ratio analysis. The research shows that it can be a very useful indicator of a business's financial viability. Therefore, based on the literary evidence, the above three heavily supported indicators have been incorporated in the proposed model.

(b) Absence of important non-financial factors

There is some strong support in the literature for greater use of non-financial information in the predictive-analysis process. Argenti (1976a, b) provides one of the

more comprehensive discussions. Argenti examined the failure phenomenon from a total perspective and identified a failure sequence consisting of defects (management, accounting, change response) leading to mistakes (overextending leverage, overtrading, investment in a major project) that are eventually expressed in symptoms (financial results, attempts at creative accounting, non-financial factors such as falling product quality, lack of maintenance etc. and finally, nosedive). Argenti's contribution to the literature is discussed in more detail in Chapter 2, Section 5.

Argenti's work is supported by Adler and Hall (1996), who examine accounting and performance indicators and their reliability for predicting organisational decline. Although they recognise the success record of Z-score within the two-years-out timeframe, they also acknowledge the work of Argenti, who criticised Altman's model for ignoring what he believed to be such crucial factors as the organisation's human resources. Adler and Hall conclude that, although Z-score and other models may be good at predicting ultimate decline, they ignore the origins of the decline such as the fiscal control system, technology and human resources in favour of subsequently occurring early warning systems in the form of financial indicators. In doing so the authors pose the question that, by waiting until the problems are expressed in financial results, is the opportunity being missed to take earlier corrective action in key strategic and operational areas of the business with the view to achieving turnaround?

Goodman et al. (1995) discussed the use of non-financial variables and concluded that variables reflecting management's capability and auditors' perception of management capability, together with financial ratios and variables reflecting the extent of

mitigating and extenuating circumstances, should be examined when studying auditors' going-concern opinions.

Eisenbeis (1997) introduced the matter of government policies, interlinked with cash flow considerations, into the list of possible causal factors behind financial distress. He points out that during an expansionary period firms will tend to expand operations and may not have sufficient cash to cover existing interest and repayment obligations. This can result in additional funding requirements that, if combined with a subsequent "economic shock", can precipitate distress. He highlights the need to consider systematic risk when assessing possible distress and states that panics are predictable, not random, and are often precipitated by government policies rather than the financial institution itself. Although this is an interesting perspective, with what would appear to be some logical merit, it is not a view that is widely supported or even discussed in the literature reviewed.

Zopounidis and Doumpos (1999) also criticise Altman and other researchers for using only financial ratios. They claim that the prediction and analysis of business failure tends to be based only on examination of financial ratios and ignores significant information which cannot be measured quantitatively, such as management, organisation and market conditions. They advocate the use of UTADIS (Utilities Additives Discriminants), a computer-generated multicriteria decision aid that uses regression analysis to assess a combination of financial and non-financial information. The model contains a significant proportion of non-financial information that the authors claim place it in a superior position to MDA and allow it to be applied in all financial classification decision problems, including the assessment of corporate

failure risk, credit-granting problems, venture-capital investments, portfolio selection, financial planning and other classification decision problems such as marketing of new products, sales-strategy problems and environmental decisions. In the article, discussion and application of this approach appears to have been limited to Greece, so its wider geographic applicability is somewhat uncertain in the absence of subsequent related research.

Therefore, despite the obvious problems associated with the introduction of subjective considerations, there is widespread support in the literature for the inclusion of non-financial information as an important component of failure-prediction models. Indeed, the literature reviewed builds a substantial case for the inclusion of non-financial factors in a model of this nature. Using the literary evidence, a range of the best-supported criteria for the Fi and Fe⁶ factors has been incorporated in to the proposed model for this thesis.

This review and discussion is expanded below in Chapter 2, Section 5 with broader consideration of the evolution of multi-dimensional modelling.

(c) *Focus on failure rather than probability of survival*

Supporters of “survival analysis” advocate that traditional models are inadequate because they tend to simply classify as failed or non-failed, and don’t recognise that a failing company may be able to remedy its weakened position. Survival analysis

⁶ Fi is internal factors of a non-financial nature. Fe is external factors of a non-financial nature. Refer discussion and description in Chapter 3, section 7.

provides an additional dimension through its ability to show the probability of a firm's endurance through a series of given time intervals. The literature on this topic was largely discussed in Chapter 2, Section 2 (Chen, 1993; Tirapat, 1999; Hamilton, 2002; Reynolds, 2002).

Whether a model focuses on determining failure or survival seems irrelevant, as one is simply the opposite of the other. However, there is included in the literature a degree of reasonable argument for the use of probability rather than a success/failure cut-off point (Ohlson, 1980; Zavgren, 1988; Ginoglou, 2002). Amongst the criticisms it addresses is the difficulty of determining a valid cut-off point and the potential need for frequent adjustment of this cut-off point due to changing business and economic circumstances (Balcaen, 2006). Typically, an MDA approach will deliver a cut-off point determined by the historic data used in the formulation of the model. Subsequently, when an individual company's financial data is applied to the model, a derived score below the pre-determined cut-off point indicates that the company is deemed to be at risk of failure; above that point the company is deemed to be not in such a position of risk. The problem here revolves entirely around the concept of a single defining and unyielding point of delineation. Given the crucial dependence on this pre-determined point in the fail/non-fail assessment, it is reasonable to question its merit as a basis of such assessment when business conditions and company profiles vary from the defining dataset. This is particularly so in borderline cases where, for example, assuming a cut-off point of a 1.81 Z-score, a company with a model score of 1.82 could be defined as "safe", whereas one with a score of 1.80 could be defined as in imminent danger of failure. The vagaries of financial reporting discussed in Section 5 of this chapter would indicate that such an assessment based on a single

point of delineation is potentially misleading and possibly even dangerous where key decisions about that company's future are made based on the assessment.

Based on the arguments presented in the literature, it is believed that a probability assessment of financial success/failure is more appropriate than a defined cut-off point, and therefore the model presented in this thesis will be designed to produce such a result.

(d) Limited utility means industry-specific alternatives are required

There is conflicting evidence on this point. Many of the models available have been designed with specific industries in mind. Even the widely used Z-score model was originally designed by Altman for manufacturing firms and has undergone varying degrees of metamorphosis to make it more relevant for a range of factors such as industry and geographic specificity. However, research has also indicated that the model, even in its original form, has proved reasonably successful across a broad range of parameters.

The greater proportion of literature reviewed in Chapter 2, Section 2 indicates that most of the models developed have been targeted at specific industry types. Even in cases where broader application has occurred with some degree of success, it appears that there is a need for further refinement and redefinition of variables to maintain the integrity of the model in varying circumstances. The development of the model discussed in this thesis has been based on a group of only three reasonably aligned

Australian industry categories (materials, industrials and energy) to assess its robustness and, beyond this thesis, it is proposed that ongoing research will accommodate a widening range of geographic and industry applications. Based on the evidence in the literature, however, this thesis has attempted to mitigate the influence of industry-specificity on the model through both the use of broader-based non-financial criteria and the removal of the industry sensitive X5 financial factor. This combination approach to the industry-specificity problem appears to be missing in the literature.

2.5 Impact of “creative accounting” on model reliability

This problem is probably the most contentious and debated issue due to the perception it creates of the potential deficiency of accounting-based models.

Creative accounting refers to the various practices management use to manipulate financial statements in an effort to cause users to draw more desirable conclusions than ought really to be the case. The term has become an all-embracing description of accounting treatments ranging from deliberate illegal and fraudulent reporting aimed at distorting the true financial position and performance of the organisation, through to “legal” interpretations of financial standards that result in a more favourable presentation than would normally be the case. Attempts at creative accounting can sometimes be detectable simply through subtle changes in accounting policy or treatment of key financial components. The term typically refers to accounting practices that deviate from standard treatment, characterised by excessive

complication and use of novel ways of characterising income, assets or liabilities. In its most serious form it refers to systematic misrepresentation of the true income, assets and liabilities of business organisations.

The literature illustrates that creative accounting can take various forms and affect a range of financial-statement components. The creation of special-purpose entities and off-balance-sheet transactions, for example, were identified as particularly problematic in the Enron demise (Reinstein and Weirich, 2002). One of the key criticisms of Altman's Z-score model (and many other similar accounting-based models) is that it relies heavily on earnings figures (retained earnings, EBIT and sales) and assets figures (total assets and working capital).

Extensive literature exists on the different ways to alter the picture presented by financial reporting, both innocently and deliberately (Griffiths, 1986; Smith, 1996; Levitt, 1998; Anandarajan, Lee et al., 2001; Hall, 2001; Eichenwald, 2002; Carlson and Sahinoz, 2003; Geriess, 2003; Millon, 2003; Nelson, Elliott et al., 2003; Solomon, Carrns et al., 2003; Milesi-Ferretti, 2004). It is generally accepted that simple and quite legal differences in interpretation of flexible accounting standards can be reflected in the results obtained from accounting ratios. Deliberate manipulation, however, will often go hand in hand with share-price manipulation, remuneration management or problem disguise. Financial data that at least meets expectations and/or matches past performance in theory should see shareholder value at least maintained. Exceeding expectations may well result in share-price increases, which may give substantial rewards to management with remuneration packages directly related to share performance. There also seems to be a general acceptance

that firms will often employ creative accounting techniques, legal or illegal, to disguise problems when they start to develop, and that this attempt may distort reported financial results and affect the predictive ability of those models that rely on the integrity of financial figures.

Spathis (2002) acknowledges fraud as a potential cause of financial failure and concludes that companies with high inventories/sales, high debt/total assets, low net profit/total assets, low working capital/total assets and low Z-scores are more likely to falsify statements. This reinforces the fact that any predictive model that relies on ratio analysis based on reported financial data provided by the organisation being reviewed can be distorted by judgmental interpretation and/or manipulation of accounting- reporting standards. This view is supported by Hall (2002), who acknowledged the instructiveness of the Altman model but identified areas where caution is required in the calculation and interpretation of the ratios.

The literature reviewed indicates that the potential impact of creative accounting is one of the major concerns when assessing the integrity of failure-prediction models. The credibility problems arising from companies' use of creative-accounting techniques is common across all of the models that rely on reported financial information. Rather than reaching a general agreement on the optimum set of financial ratios for failure prediction, the literature shows a range of diverse opinions as to both the most effective ratios and the number of ratios appropriate for a viable model. Basic interpretative differences arising from the level of flexibility allowed in accounting standards is exacerbated by the expertise some accounting professionals

show at manipulating the true financial picture. However, where attempts at creative accounting are detected, this in itself can be a possible distress indicator.

2.6 Multi-dimensional approaches

Ever since the emergence of Z-score and other models based exclusively on reported financial data, there have been advocates for greater use of non-financial information to assist in the predictive-analysis process. Almost all of the statistical credit-scoring models in use today involve a combination of a set of quantifiable financial indicators of firm performance with, perhaps, a small number of additional variables that attempt to capture some qualitative elements of the credit process. Even Altman himself states that “one should not underestimate the importance of qualitative measures in the process” (Altman, 2002, p.28) and acknowledges that banking practitioners have reported that qualitative elements involving judgement on the part of the risk officer can provide as much as 30 to 50% of the explanatory power of the scoring model. This is supported by Swicegood and Clark (2001), who, although predominantly advocating neural-network models as a means of predicting failure, acknowledge that improved judgement can be achieved by experienced analysts, and that this increases their skills at being able to predict underperformance.

It can be argued that the processes of credit scoring and bankruptcy prediction are closely aligned and, of the proponents of multi-dimensional criteria for failure assessment, Argenti (1976) has been one of the more prominent. Argenti examined

the failure phenomenon from a multi-dimensional perspective and derived a failure-sequence model consisting of:

defects (management, accounting, change response)

leading to

mistakes (overextending leverage, overtrading, investment in a major project)

that are eventually expressed in

symptoms (financial results, attempts at creative accounting, non-financial factors such as falling product quality, lack of maintenance etc. and finally, nosedive).

The model (shown below) attached predetermined research-based maximum scores (Argenti, 1976) to components of the above categories and then rated a company based on observation of the results. Intermediate scores were not allowed; the full score was to be allocated if the observer were confident that the features existed and a nil score if not. Interpreting the results, the company was regarded as not being in danger of failing if its total score was less than 25. If more than 25, the company was regarded as being in danger of failing within five years. This period to failure would decrease as the overall score increased. Much of Argenti's concluding comment in his 1976 article revolved around the need for corporate planning and early

identification of potential problem factors before they become part of a failure sequence.

DEFECTS

Points Score

Management

Autocratic CEO	8
CEO is also chairman	4
Unbalanced skill and knowledge on board	2
Passive board	2
Weak CFO	2
Lack of professional managers below the board	1

Accounting Systems

Budgetary control	3
Cash flow plans	3
Costing systems	3

Response to change

Products, processes, markets, job practices etc.	<u>15</u>
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Total possible 43

(danger mark 10)

MISTAKES

Overtrading

Expanding faster than cash funding	15
------------------------------------	----

Gearing

Bank overdraft and loans imprudently high	15
<i>Big project</i>	
Project failure jeopardising company	<u>15</u>
Total possible	45
(danger mark 15)	

SYMPTOMS

Financial

Deteriorating ratios or Z-scores	4
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Creative accounting

Signs of window dressing	4
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Non-financial signs

Declining quality, morale, market share etc.	3
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Terminal signs

Writs, rumours, resignations	<u>1</u>
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Total possible	100
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(danger mark 25)

Mearns (1991) tested Argenti's model on Lesney Products, the long-term successful UK manufacturer of Matchbox toys, which went into liquidation in 1982. Although he found the model to be not wholly applicable in that case, he did acknowledge the mistakes section as being particularly relevant, as all three of the Argenti components

(big project, high gearing and overtrading) were evident with Lesney. These same three components were also identified by Robertson (1984) in his analysis of the failure of Laker Airways. Mearns concluded from these two cases that there is an indication that a combination of the Argenti mistake components can be a recipe for failure.

Caution needs to be exercised when looking at this part of the model, however. Embarking on a major project, far from being an indicator of abnormality, is often a normal feature of business practice and should not, by itself, necessarily represent an increased risk of failure. It is therefore the combination of the components, and in particular the impact on gearing and evidence of overtrading, that is important. Both of these can be evidenced through financial measurement and should not be regarded as non-financial factors. Gearing, for instance, can be identified through ratios such as total liabilities/total assets and loan capital/share capital. Depending on the definition of overtrading, it, too, can be identified by financial data. Mearns defines overtrading as overextending by increasing stocks and fixed assets (financed by debt) whilst at the same time sacrificing liquidity, as measured by the net cash position shown in the cash- flow statement.

Von Stein and Ziegler (1984) recommend that the three separate but interrelated perspectives of balance-sheet analysis using financial ratios, analysis of bank accounts and behaviour characteristics of management be used to assess a company. The non-financial factors found by von Stein and Ziegler to set the management of a failed company apart were:

- 1) being out of touch with reality
- 2) large technical knowledge but poor commercial control
- 3) great talents in salesmanship
- 4) strong-willed
- 5) sumptuous living and unreasonable withdrawals
- 6) excessive risk-taking

These factors have been conspicuous in many of the major collapses of Australian companies over the past decade, including OneTel and HIH Insurance. Just using the case of OneTel⁷ as an example, it had a primary focus of growth at the expense of all other elements of sound commercial practice. This resulted in acquiring poor-quality customers, a large percentage of whom subsequently defaulted on their accounts. Despite advice by the company's own staff, senior management stood firm on the growth strategy, but in the process failed to recognise the full extent of the bad-debts problem and failed to adequately manage the organisation's cash flow. Massive injections of cash flow from two key investors were used to acquire licences with the view to establishing an independent mobile-phone network, but ongoing mismanagement and autocratic decision-making by the two senior executives ultimately saw the firm collapse, but not before sizeable bonuses had been paid to the senior management team. This combination of events reflects evidence from all six of the factors proposed by von Stein and Ziegler. A similar story could be told about HIH⁸, where there is also clear evidence of existence of these factors prior to its collapse (Westfield, 2003).

⁷ OneTel was an Australian telecommunications company specialising in mobile telephony. It went into bankruptcy in 2001.

⁸ HIH was Australia's largest insurance company before it collapsed in 2002.

Other examples from previous literature in support of the use of non-financial information in the failure-assessment process include Fischer (as cited in Altman and Narayanan, 1997), who advocates analysis of non-numerical information such as reports from newspapers, magazines and credit agencies, and Grice and Dugan (2001), who contend that bankruptcy is a joint result of financial distress and other events that precipitate legal action. Grice and Dugan are also particularly critical of Z-score, referring to limitations in that model due to its exclusion of indicators for what they regard as bankruptcy-precipitating non-financial events. They contend that examples of such events would include refusal of credit extension by a bank, lawsuits and union problems.

Argenti (1976) identified three categories of company, each of which tends to fail in a different way:

Type I companies are launched but never really get off the ground and fail within a few years.

Type II companies are launched, soar to great heights fairly quickly but then collapse in a blaze of publicity (e.g., the Australian case of OneTel).

Type III companies tend to be established and mature organisations that simply react to unfavourable circumstances in a manner that ultimately leads to downfall.

Richardson et al. (1994) used the Argenti type III failure to demonstrate his “boiled-frog syndrome”, which illustrates a firm with a worsening performance situation characterised by managerial insensitivity towards the decline and ineffectiveness in

dealing with it. According to Richardson, such failures typically display non-financially measured features such as complacency born of competitive success, top-management blindness to changing business circumstances, a focus on the desires of the management hierarchy rather than market-orientated goals, cultural rigidity, entrenchment of the status quo, a tendency to search for consensus and compromise solutions that work against urgency and resolve, a push for organisational growth rather than productive growth, benefits awarded without equivalent increases in productivity, rising white-collar costs and low motivation among employees. Richardson argues that these characteristics, jointly and severally, are symptomatic of an organisation in decline due to its inability to adjust to changing circumstances. Just as in the classic biological experiment where a frog placed in cool water will remain unfazed as the water is gradually brought to boiling point, culminating eventually in its death, such companies continue to operate without adjustment as circumstances around them progressively change to the point where it is too late to take the necessary corrective actions to avoid the company's demise.

It is argued that the above organisational characteristics prevent the boiled-frog organisation from sensing and reacting to significant and hostile changes. Richardson considers that arrogance lies at the heart of much business failure. This business failure is often typified by failed conglomerate "heavyweight" senior executives who seldom take advice against their own views and aspirations. Again relating back to Argenti's study (1976), he concludes that the contributing causes to such a business failure are:

1. One-person rule – where the leader is an autocratic, over-ambitious, super salesman type who is so set on successful performance that the possibility of failure is never recognised.
2. Non-participating board – where the directors take little interest in the decision-making process; often, the CEO and chairman roles are combined in these cases.
3. Unbalanced top team – where there is a lack of range of skills at senior-executive level and/or where autocratic leaders surround themselves with “yes-men”.
4. Weak finance function – where the organisation’s financial systems are inadequate and/or the adverse messages they convey are disregarded by the top management.

Westfield’s book (2003) on the HIH collapse illustrates that many of these features were evident in that company prior to its demise. In particular, the dominant influence of CEO Ray Williams, and deficient corporate governance by the board in examination of critical business-strategy decisions, were regarded as some of the key factors in the company’s demise.

The introduction of non-financial considerations introduces a subjective component to what is notionally an objective exercise under a pure financial-component analysis. Whilst it can be argued that the introduction of a qualitative component of measurement compromises somewhat the integrity of a multi-dimensional model, research does indicate that the addition of an element of qualitative judgement can recognise and account for important factors over and above those that a solely

financial model can assess. The difficulties associated with measuring such factors and their relevance across the time spectrum of a modelling approach are discussed in Chapter 5.

Australian research

Australian research in the area of predicting corporate failures has not been as extensive as that produced overseas. This is not entirely surprising, due to the relative size of the Australian economy in comparison to the US, UK and Europe, where most of the articles discussed in this thesis have their origin. Another contributing factor may also be the difficulty experienced by researchers, until more recent times, in accessing the historic Australian company financial data necessary for model development. Fortunately, this situation has improved over the years, and the FinAnalysis⁹ database used in this thesis is only one of a number that are now available to researchers and analysts.

Some of the principal contributions to the debate on failure prediction modelling in an Australian context include Castagna and Matolcsy (1981), Altman and Izan (1982) and Sharma and Iselin (2003). Castagna and Motolcsy (1981) examine the performance of five different modelling approaches using data from 32 listed companies that failed between 1963 and 1977. They conclude that, without knowledge of the individual user's preference for acceptable overall error rate and/or

⁹ FinAnalysis is developed by Aspect Huntley and provides a comprehensive database of financial information, including annual reports, relating to all companies currently and previously listed on the Australian Stock Exchange (ASX). Further information on FinAnalysis is provided in Chapter 3.

specific concerns about Type 1 versus Type 2 errors¹⁰, it is difficult to reach a conclusion on the usefulness of a model.

Altman and Izan (1982) continue in a similar vein to previous work by Altman, with a focus on the analysis of principally accrual-accounting-based data using an extension of the Z-score approach.. In contrast, Sharma and Iselin (2003) compare the accrual-based and cash-flow approaches to predicting company financial failure. In doing so, they recognise the value of cash-flow information and conclude that it is less open to manipulation than accrual-based information alone.

An example of Australian literature on the general phenomenon of corporate collapse is Clark, Dean and Oliver (1997, 2003) . However this is more a historical analysis of events surrounding a selection of major Australian corporate collapses than an attempt to develop any approach to predicting such events. Westfield (2003) is in a similar vein, focussing on the specific events surrounding and contributing to the collapse of HIH Insurance, which still remains the largest corporate collapse in Australian history. However, particularly from the perspective of multi-dimensional model utility in the Australian business scene, there remains substantial scope for further research.

2.7 Can modelling be an effective failure prediction tool?

¹⁰ A Type 1 error misclassifies a failing company as non-failing, whereas a Type 2 error classifies a non-failing company as failing.

Discussion of the literature and previous research on this topic area would not be complete without some consideration of the sizeable body of content that raises doubts about the overall effectiveness of financial modelling as a predictive tool for corporate financial failure. Indeed, some of this literature dismisses the notion of achieving any sort of reliable level of predictability in this area, whether by model usage or not.

Robertson (1991), in discussing Altman's Z-score, raises a number of validity issues and concludes the following:

- a. It is not valid for a model derived for one industry group to be used to evaluate others.*

Robertson points out that it is against the methodology of the discriminant-analysis approach, used by Altman's Z-score and many other similar models, to assume that the predictive capacity of such models, developed for a specific industry group, can be replicated across other industries. Although there is some evidence of Altman's American manufacturing industry-based Z-score being used on companies involved in such diverse activities as hotel catering and overseas trading (Inman, 1982) and airlines (Robertson, 1984), Altman (1978) reprimanded Moyer for earlier using companies not solely in manufacturing. In what appears to be an application of a double standard, however, there is evidence of Altman doing exactly this in articles published in 1974 (Altman and McGough) and 1982.

The UK's principal proponent of Z-score, Taffler (1980), also recognises the need to distinguish industry type in MDA model development and, despite some

evidence of cross-industry application, Robertson is firmly of the opinion that “the strict industry requirement of a particular model limits its application to a narrow sector of companies for which it was derived”.

b. It is not valid to use models to observe trends.

Robertson asserts this on the basis that prediction models are developed to operate on a single year's data, principally with the latest year's data being used to predict failure. However, he does appear to accept that other research (Altman, 1970; Moyer, 1977; Inman, 1982; and Robertson, 1984) has shown that scores derived from models can be useful in observing trends.

c. It is not valid to arbitrarily change cut-offs.

Robertson quite correctly points out that the cut-off for a model should be determined in the process of the statistical analysis leading to the model construct, and is the point (in an MDA analysis) of minimal misclassification. As such, it is not negotiable. He is critical of some other researchers who arbitrarily change the cut-off and singles out Altman and McGough (1974), and particularly Argenti (1976) who concluded that the standard Z-score cut-offs of 2.675 and 1.81 may be too high for UK-based companies and arbitrarily changed them to 2.0 and 1.5. As Robertson correctly queries, where is the basis of the research to support Argenti's arrival at these figures? Failure to correspond to expectations should not be rectified by manipulation of cut-offs, but by review and reassessment of the entire model construct.

d. It is not valid to change the specification of ratios in model.

Similarly, Robertson argues that changing the specification of a ratio should require a complete re-evaluation of the model because the ratios contained in a model, together with their weightings, are determined at the time of model development. The example he uses, the claim by Inman (1982) that the numerator of the X_4 factor should be changed from market value of equity to book value of equity, is not without merit or support, but such a change should involve a complete reassessment of the model and the weights attached to each of the components.

- e. *It is not valid to use such a model as a basis for decision-making issues.*

The concern here is the possible inclination to inappropriately apply a passive model such as Z-score, which was developed solely on the basis of historic data, for use as a failure-prediction tool. This would occur if the model were then to be applied in a decision-making capacity through the deliberate targeting of improvement in individual model components to achieve supposedly improved performance. For example, with four out of five ratios in the model using total assets as a denominator, if a strategic decision were made to deliberately reduce levels of total assets to improve individual ratio performance, and therefore overall Z-score result, Robertson argues that this would be an entirely inappropriate use of the model, applying it beyond its intended capacity. The individual ratios and weightings have no special meaning or significance apart from the fact that they have been included in the model because they have had a level of success, based on historic financial data of a test sample, in distinguishing between failed and non-failed companies. The correlation is not demonstrably caused, merely associative.

Shailer (1988) argues that models are generally not tested for prediction but rather are classification models to discriminate between failed and non-failed companies in hindsight. As such, they are generally experimental, rarely tested for predictive ability and generally not statistically supported. Much of this criticism appears to have some validity when the existing literature is reviewed. Although some models may be used by analysts or accounting firms in assessing organisations' likely financial performance, the literature almost exclusively focuses on model performance ex ante and is largely devoid of reported results of research where a prediction is made and revisited at some future point to assess for accuracy.

Other criticisms of models raised by Shailer include:

- Models not based and tested on Australian data are not appropriate for use in the Australian context. This is a similar argument to that expressed by Robertson above in relation to the inability of models prepared on data obtained from one industry to transcend industries. Shailer argues that a model based on data extracted from one particular geographic environment (say, the US), cannot transcend other geographic environments and therefore would not be appropriate for application in Australia.
- Contemporary data may be quite different to the outdated data used in the process of original model development. This argument recognises that the characteristics of financial data can change, and therefore a model constructed on the basis of historic data may not be appropriate for

application to current data. For example, Shailer would probably argue that Altman's Z-score, constructed using pre-1968 company financial data, may not be consistently applicable to current company data. This argument has substance due to the continually changing accounting environment. A model constructed from a set of weighted ratios derived from 40-year-old data, for example, will certainly spark ongoing validity and robustness concerns, as the very basis of the ratio constructions (accounting standards, policies and methods) is subject to periodic revision. The very premise on which the ratios, and associated weights, are calculated is likely to change. Similarly, Haber (2006) concluded that data used to derive cut-offs is year-specific and works less well when applied to different time periods. Therefore a static model is not suitable for both near-term and longer-term predictions.

- Models generally only relate to listed companies. Shailer would argue that such predictive models have limited application to that huge body of non-listed businesses, although this perceived shortcoming is mitigated by the fact that, as all public shareholder risk is directly associated with listed companies, the primary focus of models is appropriately targeted.
- Models generally attempt to predict the event only, not the timing. Although this may be useful, it may also be useful to estimate the timeframe within which the financial distress is likely to evolve.

From his research, Morris (1998) concluded that the performance of models tends to be disappointing in practice, despite the extravagant claims put forward by the proponents. He also concludes that there are few, if any, unambiguous early warning signs of corporate failure and that corporate bankruptcy is usually the result of unfortunate and unforeseeable conjunctions of events, with the underlying causes of financial distress differing at varying stages in the economic cycle. This view is supported by Van Peursem (2006), who states that models are not capable of predicting the unusual as well as the usual. Other concerns raised by Van Peursem include:

- Manipulation of accounts can affect the model; a reference to the impact of creative accounting on model integrity (refer discussion in Chapter 2, Section 5).
- Cash injections can keep companies alive despite poor results in the failure prediction model; this is evidenced in case studies such as OneTel, which, on the fundamentals, would have failed much sooner except for the additional cash injection provided by James Packer and Lachlan Murdoch. Similarly, many mining companies are high-risk, loss-making ventures kept afloat by continuing cash injections in the form of shareholder investment, with the future delivery of returns uncertain.
- Models can be distorted by irregular dividend policy. His argument is a little unclear here, but certainly it could be argued that a model with heavy reliance on cash-flow indicators could possibly be manipulated by

reduction in cash dividend payouts. This point is discussed as a non-financial factor in Chapter 3.

Many of these reservations are supported by other researchers (Morris, 1998; Haber, 2006) and there are no doubt numerous examples of failure arising solely from unpredictable catastrophic events. However, despite the merit in much of the argument and the indication that, on the face of it, the claimed model success rates may be somewhat questionable, this should not preclude researchers from continuing to work on improving approaches to assist with the prediction of financial distress. It is important to keep these potential shortcomings in mind, however, and the aim of the research for this thesis is to recognise, and wherever possible accommodate and address, these concerns in the process of the proposed approach to methodology (Chapter 3) and analysis (Chapter 5).

2.8 Conclusions

There is no clear agreement amongst academics or practitioners as to the single best definition of what constitutes corporate failure, let alone what is the best approach or model for predicting it. Much of the literature discussed attempts to promote the merits and/or statistical success of one particular approach over the available alternatives. Most of the models are not multi-dimensional in that, although the approaches adopted may be quite different, they fundamentally concentrate on analysis of financial information only. It seems unlikely that there will ever be agreement on one “ideal” model that meets all needs. The process necessarily

involves, therefore, a continuing assessment of prior and new research, recognition of perceived deficiencies and the development of possible improvements in predictive capability.

Review of the literature indicates that most attention has been directed at achieving improved performance through development of more sophisticated models; insufficient focus has been placed on identifying and correcting deficiencies of previous models. In the construction of the model for this thesis, an increased focus will be applied to the areas of perceived deficiencies, building in additional or alternative analysis of factors that prior research indicates will assist in achieving the objective of improved integrity and reliability of results, whilst at the same time retaining sustained accessibility for practitioners and analysts.

To mitigate the creative-accounting influence, a tri-dimensional approach incorporating the use of a broader range of financial and non-financial information will be adopted. This approach is intended to reduce the exclusive influence of the reported accounting data that forms the sole basis of the Z-score factors. By supplementing these factors with other financial criteria, such as distress indicators used by Argenti (1976) for overtrading and excessive gearing, and cash-flow ratios and measurements that are less subject to the potential influence of creative accounting, it is expected that the overall impact of any creative-accounting practices will be mitigated.

Some of the literature discussed above promotes the use of non-financial factors to assist with company failure prediction and, ideally, a range of non-financial factors

typically not affected by financial manoeuvring would also be incorporated in the model. However, in the model development and testing process described in chapters 3 and 5, problems with subjective interpretation and timing of information sourcing will be identified and discussed in the context of their possible impact on failure-prediction models.

Chapter 3 will discuss the research methodology used for this thesis, including the approach adopted in the development of the proposed predictive model.

Chapter 3

Methodology and Development of the Model

3.1 Introduction

Having discussed in Chapter 2 some of the previous research relating to corporate failure and attempts to assist with its prediction, this chapter will start to build the approach to be applied to the problem in this thesis. It will be presented in six sections, each covering one of the issues considered key to the overall methodology and approach.

The first issue discussed in Section 2 is the uncertainty surrounding the use of models as failure-prediction tools. Given some of the concerns expressed about models in Chapter 2, Section 7, the discussion attempts to build a case for their validity and lays the groundwork for the modelling approach to follow. Also, given the absence of agreement amongst researchers on a definition for corporate failure (discussed in Chapter 2, Section 2), it is important to state and justify the basis used as a failure indicator for any predictive approach proposed in this thesis. This is covered in Section 3, followed by a discussion in Section 4 of the method adopted for the database selection.

The next two sections focus on the extraction of data used to construct and test the model. The approach here relies substantially on document-analysis methodology,

with most of the source data coming from the financial information and commentary contained in the annual reports of the companies selected for the database. Section 5 discusses this document-analysis approach, along with some of the valid concerns and limitations of using company reports produced for public consumption; Section 6 deals with the method of data extraction.

Finally, Section 7 introduces the proposed model structure and discusses the key components prior to the testing and output analysis presented in Chapter 5.

3.2 Why a model?

Since the late 1960s, models have been used extensively as tools for the attempted prediction of corporate financial failure. These models have primarily been based on financial data and accruals-based ratios, but have also been varied over time to recognise other key factors such as cash flow and some non-financial criteria. The popularity of such models initially came about as a natural progression from the pre-existing univariate approach, whereby business performance was assessed by individual financial ratios, often with conflicting results. The modelling approach pioneered by Altman (1968) facilitated a combination of weighted ratios to arrive at a single Z-score component, which supposedly provided a point of delineation between failure and non-failure. Other models using the same popular MDA approach have attempted to achieve the same result, but as argued in Chapter 2, such an arbitrary delineation is difficult to support.

The previous chapter discussed the many problems associated with such models and raised questions about their effectiveness. Nevertheless, the plethora of models continues to expand as researchers continue to seek improved robustness and predictive power. The concept of perfect predictability, or even consistently high predictive success, is an unrealistic expectation, even within a single business environment. There are simply too many variables, contingencies and unknown or unexpected events continually contributing to an organisation's ongoing viability. To then go further and expect a model to be universally applicable across differing business categories and international environments is just as unrealistic.

Regardless of these concerns, the modelling approach does present a convenient, methodical and consistent approach to analysis of predicted business performance, albeit that typically heavy reliance is placed on past data to predict future performance. With no readily apparent superior method of deriving predictive capacity, the problem therefore continually comes back to improving the robustness and integrity of the modelling techniques. Despite some general reservations about modelling in general (discussed in Chapter 2, Section 7), it is believed that the model proposed in this thesis will deliver a more-than-acceptable level of robustness, given the approach adopted through the development process discussed in this chapter.

3.3 The failure criteria

The problems with definition of failure in the context of a corporate entity were raised in Chapter 2, Section 2. It was established that the literature reviewed:

- 1) did not provide a consensus on the definition of failure;
- 2) indicated that the failure phenomenon can be much broader than appears to be generally assumed when applying the model; and
- 3) Supported the view that there are different forms of failure apart from just the bankruptcy event on which models such as Altman's Z-score and others are exclusively based.

The concept of failure is actually quite a broad one, and can range from a company delisting due to financially induced requirements to restructure or merge, right through to final liquidators' declaration giving rise to capital loss and ultimate deregistration. Therefore, a definition of corporate financial failure should not realistically be confined to a simplistic failed/non-failed position based on a bankruptcy result (as advocated by most of the Z-score based models), but instead should recognise that failure can take many forms prior to reaching the final stage of bankruptcy. A sole reliance on the bankruptcy result can actually compromise the integrity of results returned by models because it misses a range of preliminary circumstances that arguably constitute indicators of a valid failure event. Also discussed in Chapter 2, the use of an MDA-generated cut-off point, above which the company is deemed to be healthy and below which it is deemed to be imminently bankrupt, is a source of criticism for those models that adopt this approach.

For the above reasons it is proposed in this thesis to use a broad definition to determine the failure event for application in the proposed model. To do so it will be necessary to take account of the classifications of corporate position used for companies on the ASX. Except where otherwise indicated, these explanations have

been taken from the “Delisted” website (www.delisted.com.au)¹ and are shown in Appendix 8. These trading-status explanations include the key definitions of delisted, administration, receivership, liquidation and deregistration.

The broader definition used for this thesis encompasses a slightly different approach to that typically used in most existing models by regarding corporate failure as a process, not an event. Although failure may be evidenced by events such as delisting or bankruptcy, it can be argued that at least three levels of failure categorisation exist on the continuum. In increasing degrees of seriousness (and finality), these categories have been assessed as:

Type 1 — companies with financial problems resulting in merger, acquisition, scheme of arrangement or restructuring, but continuing to operate, perhaps in a different form. A scheme of arrangement can be put in place before a company reaches the point of being put in the hands of an administrator. It is simply a court-approved arrangement between the company and its shareholders or creditors (any of these parties can make the application to the court), requiring the creditors to either abandon the balance of their claims after receiving a specified distribution, or at least agree to deferment of repayment of outstanding debts for the duration of the scheme in order to allow the company to continue its operations in accordance with the scheme. Regardless of the ongoing success or otherwise of the company, the need for a scheme of arrangement is clearly an indicator of financial difficulties and can arguably be regarded as one of the early stages on the continuum of financial failure.

¹ The “Delisted” website is affiliated with the Australian Stock Exchange and is a source of information for ASX definitions and progress reports on individual company ASX classification with regard to trading status.

Type 2 — companies placed in the hands of administrator/liquidator but no final declaration has yet been made allowing for claim of capital losses; perhaps a deed of arrangement is in place to allow continued operation, if only temporarily.

Type 3 — final declaration of administrator/liquidator closing down the business activity and allowing claims for losses against tax; also includes the final stage of deregistration.

The companies selected for the database have been grouped into the above categories (refer Appendix 5) to delineate the degree of failure in each case. However, for the purposes of the logistic regression analysis discussed in chapter 5, which requires a binary approach, the three failure categories have been combined and allocated classification 1 (failed). The random sample database of successful companies has been allocated classification 0 (non-failed).

3.4 The database selection

The sample group for provision of data for analysis comprise 47 Australian Stock Exchange (ASX) delisted and 35 listed companies drawn from the Global Industry Classification Standard (GICS) economic sectors of energy, materials and industrials.² Discussion of this sample group is expanded in Chapter 4, with this section primarily providing background to the selection methodology.

² For the “failed” database, all companies that had been delisted from the ASX in the previous 10 years, that met the definition criteria of failure as discussed in Chapter 3 Section 3 and whose historic financial information was accessible, were selected. For the “failed” database, all companies that had been delisted from the ASX in the previous 10 years, that met the definition criteria of failure as

“GICS was jointly developed in 1999 by Standard & Poor’s and Morgan Stanley Capital International (MSCI) and was designed to meet the global financial community’s need for one complete, consistent set of global sector and industry definitions that reflects today’s economy, and yet also be flexible enough to easily adapt to a continually evolving investment world. It was developed to facilitate sector analysis and investing on a global basis and achieves this by uniformly classifying companies around the world, in both developed and developing markets, according to their main business operation”. (Standard & Poor’s, 2002)

The GICS system consists of four levels of detail: 10 sectors, 23 industry groupings, 59 industries and 122 sub-industries. At the most specific level of detail, an individual company is assigned to a single GICS sub-industry according to the definition of its principal business activity as determined by Standard & Poor’s and MSCI. The hierarchical nature of the structure automatically assigns the company’s industry, industry group and sector. The main criteria for defining principal business activity, and therefore classification, are revenue sources and earnings analysis, but market perception is also considered.

discussed in Chapter 3 Section 3 and whose historic financial information was accessible, were selected. The 10 year limit was imposed primarily because of the difficulty in extracting company information beyond that period, but also because it was considered, based on the prior research, that information beyond that period would compromise the integrity of a model derived from its use due mainly to changing business and economic factors and accounting practices. The FinAnalysis database, which provided the necessary source financial information, generally did not provide historic data beyond that point anyway.

The selection of firms for the non-failed database was purely by random sample with roughly equal numbers selected from each of the three categories. There was no matching of failed and non-failed categories because logistic regression, unlike multiple discriminatory analysis, does not require such a matching. The reasons for selection of logistic regression as the statistical approach are covered in Chapter 5 Section 2.

The 10 economic sectors in the GICS structure are energy, materials, industrials, consumer discretionary, consumer staples, health care, financials, information technology, telecommunication services and utilities. Each of these is then sub-categorised in to industry group, industry and sub-industry as shown in Appendix 1.

The database selected for analysis has been derived from the first three sectors, energy, materials and industrials. A combination of these sectors allows for the selection of a sufficiently sized sample of failed companies to be statistically significant, something which was not possible to achieve with any one of those three individual segments due to the relatively small size of the Australian stock market. These sectors, however, do have broad similarities and relativities which it is believed will allow for acceptable composite model robustness across the three sectors. As discussed earlier, the model would not necessarily be applicable across the remaining GICS sectors or indeed across the same three sectors in different geographical business environments.

Selection of the energy, materials and industrials sectors contributes to a failure-prediction model encompassing energy equipment and services, oil and gas (including exploration and production), chemicals, construction materials, containers and packaging, metals and mining, paper and forest products, aerospace and defence, building products, construction and engineering, electrical equipment, industrial conglomerates, machinery, trading companies and distributors, commercial services and supplies (including printing, employment and environmental services), air freight and logistics, airlines, marine, road and rail and transportation infrastructure.

Together, these comprise approximately 35% (by number of companies) of the overall GICS structure for analysis in this thesis. Further discussion of the individual components of the selected database is provided in Chapter 4.

3.5 Document analysis and the reliance on annual reports

An essential component of the methodology applied in this thesis is the extraction and analysis of predominantly financial information from sources such as the audited financial statements contained within company annual reports. Expanding on this core component, other document analysis includes the review of the non-audited commentary segments of annual reports and independent commentary of company performance and/or events affecting, or potentially affecting, performance. Much of the independent commentary has been derived from literary sources such as the financial press or website newsletters. These latter sources constitute the basis of a mainly qualitative analysis, and predominantly contribute to the non-financial component of the model (discussed in Chapter 5).

Section 6 below details the data extraction process. The FinAnalysis database referred to is the principal source of financial information for the model construction, but this database itself fully relies on the financial information provided to it from the annual reports and public financial statements of the companies listed. This, therefore, excludes valuable internal decision-making sources, but the inability to access all company information is not an uncommon problem for external

stakeholders or analysts. However, the potential problems that coexist with such a restrictive data source need to be acknowledged.

Financial information

Financial information for application in the model developed in this thesis requires document analysis of the audited financial statements section of the annual report for each company in the database. The model components, detailed in Section 7, draw on the following source data:

- Working capital – total current assets minus total current liabilities, both from the balance sheet
- Total assets – balance sheet
- Retained earnings – from the equity section of the balance sheet
- Earnings before interest and tax (EBIT) – income statement (profit and loss account)
- Market value of equity – number of ordinary shares (from balance sheet or notes to the accounts) multiplied by the market price of the company's ordinary shares at the reporting date
- Book value of debt – loan liability from the balance sheet
- Cash flow from operations (CFFO) – from statement of cash flows
- Total debt – total liabilities from the balance sheet
- Total cash inflows – total inflows from the statement of cash flows
- Fixed assets plus inventory – non-current assets balance plus inventory figure from current assets, both from the balance sheet
- Net cash – closing balance of the statement of cash flows
- Total liabilities – from balance sheet

- Loan capital – balance of outstanding debt, both current and non-current, from the balance sheet
- Share capital – total equity figure from the balance sheet

These figures constitute the basis of the ratios used in the model, ultimately producing a failure-probability index for each company being analysed. The companies used in the construction of this model are listed in the database information in Chapter 4. However, for the proposed future use of the model, or any variants, there is little restriction to the potential range of companies that could be examined once the model is adjusted for industry and/or geographic conditions. One could embrace a reasonable degree of confidence in financial information of this nature, which could be regarded as “unbiased” and predominantly “objective” as a result of being extracted directly from accounting reports that have been independently reviewed and audited. At this point, from the analyst’s perspective, there has been no subjective interpretation required for the insertion of the raw data into the model components. However, it is a different story when further back at the point where the financial figures are actually prepared for the individual companies’ financial statements.

Courtis (1996, p.146) states that “annual changes in financial ratio values are susceptible to ambiguous interpretation because of different applications of generally accepted accounting principles and different numerator/denominator component selections.” This view is largely supported by the prior discussion of creative accounting in Chapter 2, section 5.

The application of judgement and interpretation to the figures stated in company financial reports arises predominantly from the inherent flexibility built into the various accounting standards and generally accepted accounting principles. Although this flexibility may be subject to criticism because it allows for the introduction of a degree of subjectivity into a process that relies heavily on objectivity for its integrity and credibility, it can equally be argued that such flexibility is necessary to provide businesses with the ability to reflect the specific nature of their operations. However, whatever the argument, the current situation is one where individual interpretation and subjectivity can have an impact on reported results, and therefore on the components of many financial ratios, including some of those contained within the model proposed in this thesis.

With specific reference to the model components, the key items likely to be affected are assets and earnings. Both non-current and current asset values are potentially affected. Non-current assets can be affected by issues such as valuation method (historical cost or replacement cost)³, the useful life attached to the asset⁴ and the capitalisation policies⁵ of individual companies. If asset categories such as property and/or plant and equipment are regularly revalued, as recommended by accounting standards, the basis will usually approximate an estimated replacement cost if it is assumed that the company will remain a going concern. The flexibility allowed in this process of valuation will inherently introduce a large degree of subjectivity as companies seek a basis of valuation acceptable to both management and auditors.

³ Historical cost refers to the original price paid; replacement cost is a re-valuation method which approximates the current cost of replacing the asset with a new equivalent.

⁴ Useful life of an asset refers to the estimated time period that the asset can be used by a company to contribute to income generation.

⁵ Capitalisation policy determines the level of cost at which an item of an asset nature is included in the company's asset base and depreciated over its estimated useful life. Below this level the item is expensed in the year of purchase.

Even where independent external valuers are used, it is possible that the judgement of individual valuers may result in a different estimated replacement cost valuation for the same asset.

Asset useful lives are important because the most commonly used method of depreciation, the straight line method, simply divides the asset value by the number of years of estimated useful life that the asset is expected to provide for the company. This may vary from company to company depending on the rate of usage of the asset, but the life allocated has a direct impact on the amount of annual depreciation expense brought to account, and therefore the level of reported profit. Similarly, capitalisation policy may vary between companies and will affect whether the expense of the asset purchase is brought to account immediately or spread over a period of time equating to the estimated useful life. If the purchased item is capitalised (treated as an asset), it is included in the depreciable asset values of the company and reflected in the balance sheet. If not, it is expensed in the year of purchase and the full cost impact is felt in that year's reported profit.

With current assets, the main impacts on asset value and earnings are in the areas of inventory valuation and receivables. Although the choice of inventory valuation⁶ may affect the timing of when the inventory expense is brought to account, the area most open to flexible interpretation, or possibly manipulation, is receivables. These are amounts owing to the company as a result of sales made on credit, and therefore

⁶ In Australia, the two acceptable types of inventory valuation are FIFO (First In First Out) and the more commonly used Weighted Average method. Items of inventory are expensed at the time of sale of the finished goods purchased or manufactured.

need to reflect the extent to which these amounts are at risk. All companies will lose a proportion of receivables through bad debts; this risk is typically accounted for by way of a provision for doubtful debts that is adjusted and expensed on an annual basis. The most common way of estimating the level of provision required is by the aging of receivables method, which categorises total receivables into blocks depending upon the length of time outstanding and calculates a provision based on a percentage of the value of receivables in each block. Typically the percentage will increase with the length of time outstanding, as this reflects the increasing level of risk of non-payment. The percentage applied to each category is subject to the judgement of the individual company and is typically based on previous payment history. However, the higher the level of provision derived, the lower will be the level of asset and reported profit⁷.

The problem with the above is that, although supporting information about the basis of judgement and calculation may be disclosed in the notes to the accounts, this publicly available information is unlikely to be sufficient for an external analyst or researcher to justify a substantial challenge. For example, what is the basis of challenge for one company attaching an estimated useful life of five years for an asset category when another company may use four years or six years; or where one company uses 5% of a receivables category for part of its provision for doubtful debts whereas another company uses 10%? In each case it can be argued that the basis used constitutes a reflection of the operating circumstances of a particular company. Although the raw data is appropriate for the practical purposes of constructing the model, when extracting data for individual company analysis, whether within a model

⁷ Net receivables = gross receivables minus provision for doubtful debts. The increase in the provision each year is shown as a bad-debts expense in the income statement and therefore reduces profit.

framework or not, it would be useful to look at the basis of calculation of such items, particularly in the context of sudden or extreme changes to the method applied. This may potentially indicate deliberate attempts at earnings management or asset-value manipulation, whereby a company attempts to present a more favourable picture of its financial performance and position than is actually the case. Whilst the model itself may not accommodate an adjustment, the analyst should at least be aware of possible distortion of the model results when making company performance judgements.

Non-financial information sources

The non-financial information used for the model also relies heavily on document analysis, but of a broader and more subjective nature than the financial information previously discussed. Sources include written internal company commentary from within the annual reports and various forms of external financial commentary such as newspaper and magazine articles, websites of financial commentators, newsletters and company and ASX announcements. The main limitation of this type of source information is its reliance on the unsubstantiated and usually unverifiable opinion of the author, but at least it provides a sample of additional internal factors, external financial market opinion and overall cursory evidence of possibly important issues to be considered in the company-performance process. The distinct problem with these non-financial factors, however, is the degree of reliance on subjective interpretation of the information by the analyst and the limited timeframe within which the information is effective in adding value to the modelling process. This is discussed further in the following section (Section 6) and again in conjunction with the model analysis in Chapter 5.

3.6 The data extraction

Financial data for the companies selected has been derived from the Aspect Huntley FinAnalysis package. Information for the non-financial components (refer Appendix 2) has been obtained principally from the notes and written commentary in the annual reports of the database companies, but supported by referral to financial commentary from sources such as newspapers/periodicals and the newsletters and websites of financial analysts/commentators.

FinAnalysis

This package provides a 12-year financial history (where available) for all companies currently and previously listed on the Australian Stock Exchange (ASX). It is a well-known and respected data source for both analysts and researchers and provides the most comprehensive historic database for company financial data in Australia. Data is entered and audited by financial analysts, and it is claimed that over 400 data items are provided for each company. The key content areas include the prime financial statements, breakdown of revenues and expenses, financial analysis and ratios, historic share prices and market capitalisation and dividend-payment history. Importantly, the package also incorporates full versions of all available annual reports of each company, whether or not the company is still listed.

Data for the key financial components discussed in Section 5 was extracted from FinAnalysis and initially fed into a data-collection spreadsheet (Appendix 4), collating data for each component for each company from Y0 (the most recent year prior to the failure event) to Y9, a maximum of ten years' history. Once data was

collated for each company, it was then, on an annual basis only, transferred to a second spreadsheet (Appendix 5), thereby collating data in a format that facilitates a year-by-year analysis of the key variables and ultimately development of a model that recognises variability in the significance of the key components across different time periods from the failure event.

Non-financial data

These key factors, identified from topic-related literature, discussion with practitioners and analysts and feedback from presented conference papers on the topic, were incorporated into a scoresheet (Appendix 3). Each of the 15 factors shown in Appendix 2 (the model structure) and Appendix 3 (the non-financial scoresheet) were allocated a score of 0 to 5 (0 = no evidence, 5 = extremely strong evidence) based on research involving perusal of annual reports and financial commentary (both paper- and web-sourced). This was essentially a subjective score based on interpretation of the evidence available in each company's annual-report commentary, newspaper and journal articles relating to the dataset companies and web-based reviews provided by financial commentators and regulatory parties. Once scores were collated for each company, a summary score of 1-5 was allocated based on the following total scores from the scoresheet:

Overall collated score of <20 = summary score of 1

20-25 = 2

26-30 = 3

31-35 = 4

>35 = 5

Therefore a collated score of 5 indicates a high non-financial component impact, with 1 or 2 indicating a lower degree of influence. The significance of these varying degrees of impact, however, is determined in the application of the model in Appendix 2 and the analysis of the results discussed in Chapter 5. The spreadsheet shown in Appendix 4 illustrates how the initial data-collection procedure was exercised, and Appendix 5 illustrates the annualisation of the individual company data collected in Appendix 4. Appendix 5 also includes details of the non-financial scoring.

Once the summary scores were determined, they were entered into the non-financial component of the model that applies in the year prior to the failure event (Y0). This factor is only applied in the Y0 version of the model because it became very evident during the research process that information relating to the majority of these factors generally presented itself in a clearly recognisable form only in the later stages of problem development. Also, the time taken to extract data presented a major restriction on the effective use of the model. In its formulation, one of the objectives for the model was for it to be conveniently and quickly applicable by researchers and analysts alike. It therefore needs to be recognised that anything up to 10 hours of research time may be required to extract one composite, subjective, non-financial component of somewhat dubious additional value to the financial components, which are readily extractable from each company's annual report. The level of judgement required in the interpretation of some of the non-financial information contributes directly to the scores allocated and therefore adds an element of subjectivity, which should be noted as an area of possible concern. The accounting and cash flow data is

regarded as having sufficient indicative basis for application to the probability model developed; therefore, the non-financial component of the model is very much regarded as a supporting, rather than a primary, contributing indicator, and then only in the later stages of company failure. Although this may conflict somewhat with some of the literature (Argenti, 1976; Mearns, 1991; Cheng-Ying, 2004; Linden, 2004; Lussier, 2005) supporting the use of non-financial data, there is little discussion within this literature of how the problem of subjective interpretation of information is managed. In particular, it fails to deal with how consistency of interpretation can be achieved and the impact of misinterpretation mitigated. It also fails to adequately recognise the time needed to research, extract and interpret this information.

Therefore, although these problems did not eliminate consideration of non-financial factors, the usefulness of these factors was effectively restricted to the final or most recent reporting period, and even then regarded with a degree of caution commensurate with the level of subjective interpretation employed.

3.7 The application of the model

Specifications of the model

The concept model introduced in Chapter 1 was:

Potential Failure Indicator (PFI) = F1 (Z-score based accounting ratios) + F2 (cash flow components and indicators of overtrading/excessive gearing) + F3 (a non-financial score [NFS] based on both internal and external factors) .

The specifications of this model are diagrammatically presented in Appendix 2.

Discussion of the individual components of the model

The model relies primarily on the F1 and F2 financial indicators, consisting of components of the Z-score model (Altman 2000), three cash-flow ratios strongly supported in previous research (Beaver, 1967; Holmen, 1988; Mills, 1998; Sharma, 2003), cash flows from operations and three failure indicators derived from Argenti's 1976 A model (Argenti, 1976). As discussed in the previous section, the F3 non-financial score (NFS) has been derived from a collated variety of sources (refer Appendix 2 and 3) and summarised to an overall score allocation of 1 to 3 for application to the model in the final year before organisational failure, or the latest reporting period for those companies in the Non-failed dataset.

Altman Z-score factors

The arguments for incorporating a Z-score component in to the model have been discussed at length in earlier chapters. The original 1968 version of Z-score, which containing five weighted variables (contributing to an overall score which determined whether or not the firm was likely to fail), has been modified on a number of occasions, with the latest major revision being in 2000. Over the years the use of the X₅ factor (sales/total assets) has come under increasing criticism. Some researchers exclude this factor because of its high inter-industry variability and its tendency to under-predict failure (as defined by the bankruptcy event, which is quite common for MDA-based models such as Z-score). Altman recognised this in his 1983 variation,

which excluded the X_5 factor, but reintroduced it in the 2000 revised model. Testing of the ratio by Philosophov and Philosophov (2002) led them to conclude that it had low prognostic potential and to state that Altman's arguments for its inclusion in the original model were unconvincing. Apart from the variability issue and the concerns surrounding integrity of predictability, it is argued that the important factor here is the profitability from sales, not the level of sales. This profitability is reflected in the X_2 and X_3 factors which relate to EBIT and Retained Earnings.

Therefore, concentrating on the Altman X_1 - X_4 factors, we have the following set of accounting-resourced indicators as shown in Appendices 4A and 4C:

X_1 (working capital/total assets)

This measures liquid assets in relation to the firm's size. Research (Philosophov, 2002) shows that, as a firm approaches bankruptcy, there is a noticeable increase in its current liabilities relative to assets, and this can be expressed by the X_1 factor.

X_2 (retained earnings/total assets)

This is a measure of cumulative profitability that reflects the firm's age as well as earning power. Some studies have shown failure rates to be closely related to the age of the business, with a higher tendency to failure in the early years of the business's life.

X_3 (earnings before interest and tax/total assets)

This is a measure of operating efficiency separated from any leverage effects. It recognizes operating earnings as a key to long-run viability.

X₄ (market value of equity/book value of debt)

This ratio adds a market dimension. Academic studies of stock markets suggest that security price changes may foreshadow upcoming problems.

The Z-score function of $Z_{II} = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$ (Altman, 2002) provides an overall composite score, but this score cannot be incorporated in the proposed logistic regression model as the Z-score is MDA-based and comes from weightings determined from a different dataset. Instead, the individual variables will be applied to the selected dataset for this research project, as discussed above and in further detail in Chapter 4, and their individual significance statistically determined.

Cash-flow factors

The strength of support for the inclusion of cash-flow factors as indicators of financial strength or weakness was discussed at length in Chapter 2. The literary evidence is extensive, and largely supports views such as those expressed by Mills and Yamamura (1998), who contend that, when it comes to liquidity analysis, cash-flow information is more reliable than balance-sheet or income-statement information. Although it is generally accepted that working-capital ratios can provide an indication of liquidity at a prior point, proponents of cash-flow measures would argue that they provide a more dynamic picture of the available resources to meet future commitments.

The following ratios, widely supported in the literature, have been incorporated into the research model for this thesis:

Cash flow from operations/total debt (CFFO/TD)

This ratio measures a company's ability to cover future debt obligations and is regarded by some researchers as the single best predictor of bankruptcy. Beaver strongly supported this ratio in his early work (Beaver, 1967) and is supported in subsequent literature by authors such as Holmen (1988), Mills and Yamamura (1998) and Sharma and Iselin (2003). This ratio is regarded as a measure of longer-term financial viability rather than shorter-term solvency.

Cash flow from operations/total cash inflows (CFFO/TCI)

Sharma (2002) contends that if a company is on the verge of bankruptcy for financial reasons, it would be reasonable to expect declining operating cash flows and increasing cash inflows from financing and investing.

Cash flow from operations/current liabilities (CFFO/CL)

This is a measure of short-term solvency and shows a company's ability to generate sufficient resources to meet current liabilities, including the current portion of long-term debt maturities.

Businesses typically reach a final failure point due to unresolvable cash-flow problems. Although these problems may be temporarily alleviated by investment flows such as sale of assets, or financing flows such as additional investment or borrowings, ultimately a business cannot retrieve or maintain a position of financial

strength unless it can achieve a stable and acceptable level of cash flow from operations.

In addition to the above three CFFO-based ratios, and due to the strength of literary argument in support of CFFO as a reliable indicator of potential financial stress, the raw CFFO figure was included as a variable in the model. Although this was a largely experimental approach, the inclusion of this factor had a surprisingly positive effect on the strength of results achieved in some periods. This is discussed further in Chapter 5, Analysis of Results.

Argenti failure indicators

The 1976 model developed by Argenti (refer Chapter 2, Section 3) focussed on a blend of both financial and non-financial indicators. Each one was allocated a maximum score which, when added together, gave a potential maximum overall score of 100. An actual score was allocated to each indicator based on calculation or evidence of existence. The closer the total of the actual scores to 100, the greater the likelihood of failure, according to the model. The model was comprised of three major segments; defects, mistakes and symptoms. These defects, mistakes and symptoms, discussed in Chapter 2, are formulated such that the model is clearly skewed to the second segment, mistakes. It accounts for 45% of the potential score, with each of the three indicators allocated a potential 15 points out of 100, the maximum individual score for any of the model components.

MISTAKES

Over-trading

Expanding faster than cash funding	15
------------------------------------	----

Gearing

Bank overdraft and loans imprudently high	15
---	----

Big project

Project failure jeopardising company	<u>15</u>
--------------------------------------	-----------

Total possible	45
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(danger mark 15)

The danger mark of 15 states that a score as low as 15 out of 45 for this segment - in other words, only one area of “mistakes” - would indicate a heightened risk of failure. This emphasises the importance that Argenti placed on this particular group of factors.

The first two of these factors, overtrading and excessive gearing, are measurable with data obtainable from a company’s reported financial statements, and can be tracked over a number of years. The ratios used for these (and applied in the thesis model) are:

Overtrading

Fixed assets plus inventory/net cash [(FA+I)/NC]

This shows the relationship between the level of investment in fixed (long-term) assets and short-term working capital relative to the level of available cash. The indicator of overtrading and potential financial distress increases with an increase in the level of assets relative to cash.

Excessive gearing

This is detectable through a combination of the following two ratios used by Argenti:

Total liabilities/total assets (TL/TA)

and

Loan capital/share capital (LC/SC)

A high ratio for these indicates a high level of debt relative to either the total value of assets of the company, or the level of funds provided by equity investors (shareholders). Either of these would be an indicator of excessive gearing and a potential precursor to possible financial failure.

Non-financial factors

The following factors, selected on the basis of literary evidence and consultation with financial analysts, were assessed for each company in the Failed and Non-failed datasets:

Fi1 – Absence of effective policies on accounting treatments

The less evidence there is of effective accounting policies, particularly in the areas of conservative revenue recognition and accounting for liabilities, the greater the likelihood of financial distress developing. For example, case histories such as OneTel and HIH⁸ graphically illustrate the consequences of inadequate recognition of bad debts and growing liabilities.

Fi2 – Existence of indicators of attempts at creative accounting

The impact of attempts at creative accounting on model reliability was discussed in Chapter 2, Section 4. The research clearly indicates that such attempts usually occur to present a healthier financial picture than actually exists, often to disguise looming financial problems.

Fi3 – Existence of contingent liabilities potentially affecting financial viability

History is riddled with evidence of otherwise healthy companies (e.g., Coloroll, UFI Pools, HIH) that have failed as a direct result of the crystallisation of a contingent liability (such as an unfavourable settlement of an outstanding legal case, or liability arising from an asset acquisition). Such possibilities should be disclosed in the notes to the accounts and should be risk assessed from both the company and audit perspectives.

Fi4 – Existence of risky investment strategies

⁸ Refer footnotes 6 and 7. Both companies had adopted aggressive growth strategies that resulted in high levels of liabilities in their respective balance sheets. This large level of commitment for debt servicing, together with failure to adequately recognise growing problems with bad debts, contributed to the financial decline and ultimate failure of both companies.

Similarly, ample evidence exists of financially healthy companies (e.g., Rolls Royce, HIH Insurance) that have failed wholly or partly due to risky investment strategies, or even over-investment in a single major project that fails to deliver on expected returns.

Fi5/6 – Autocratic CEO/ Combined role of CEO and Chairman of the Board

The research of Argenti (1976) and others (Westfield, 2003; Wheatcroft, 2002; Mak, 2005; Simpson, 1999; Millon, 2003; Lussier, 1995; Clarke, 2003) indicates that the type of CEO role exercised in a company can result in an increased likelihood of the company's failure. The empirical evidence from such research indicates that an autocratic CEO who rules without consideration of criticism or different opinions, and/or who is capable of exerting undue influence over the board, can be capable of making unilateral business decisions that ultimately compromise the ongoing viability of the organisation.

Fi7 – Absence of appropriate mix of business and finance skills on the Board

There is a strong body of support for the inclusion of an appropriate mix of skills on a board. Researchers such as Argenti (1976), Mearns (1991) and Mohammed (2002) advocate a strong financial presence to balance the all-too-often inadequate blend of management, industry and technical expertise. The research indicates that the absence of a level of financial representation sufficient to exert influence on board decision-making can be a contributing factor to company demise.

Fi8 – Risky financing strategy such as high levels of debt

High levels of debt are also evidenced by the above Argenti failure indicators of TL/TA and LC/SC and are typically symptomatic of a company that is overextending its risk exposure. Although high levels of debt are not uncommon, particularly when companies are pursuing growth strategies, they need to be balanced with a capacity to meet the ongoing legal obligations of capital repayment and debt-servicing costs. The tendency to extend borrowing to meet these pre-existing obligations is a particularly potent warning sign.

Fi9 – Absence of stable dividend policy and/or declining dividend payments

The non-payment of dividends may actually be a part of a stable dividend policy, particularly when companies have a strategy of prioritising the application of retained earnings in pursuit of growth. However, the absence of such a policy, especially when combined with erratic or declining dividend distributions, can be an indicator of evolving cash constraints.

Fi10 – Unfavourable market factors

Declining market conditions, either from a macro perspective (such as a decline in economic growth or recessionary trend) or a micro perspective (loss of market share or decline in demand for a company's key product), may generate problematic financial conditions for a company that it is unable to withstand.

Fi11 – Existence of other possible areas of risk exposure

These are often related (but additional) to other factors discussed in this section, but not yet allocated due to ambiguity of fit.

Fi12 – Adverse audit comments or qualified report

Depending on the nature of these comments, they can represent an indicator of developing problems for the company that have been detected during an audit process.

Fe1 - Adverse analyst comments or press coverage and

Fe2 - Unusual movements in market price

These external indicators typically represent concerns about the company's past or projected future performance expressed by external parties. These can be written or spoken by analysts or members of the financial press, or sudden and significant downward movements in share price, reflecting loss of confidence by investors. In many cases these comments or share price movements will reflect circumstances represented in the other factors discussed above.

Once these factors have been assessed on a scale of 1 to 5 (5 being the highest degree of evidence), they are allocated a summarised risk-exposure category of 1 to 3 (3 being the highest level of risk); this is incorporated into the model as the F3 factor.

In reality, an incidence of failure can incorporate a mixture of such indicators. For example, the situation of ABC Learning Centres (not included in the database for this thesis) of late February 2008 would, at the time of writing, fit into a lower-level

Category 1 failure as discussed in Chapter 3, Section.2. Although the organisation had not at that point delisted or entered into any formal schemes of arrangement, it was clear that, at a minimum, a sizeable number of its centres, particularly in the US, would need to be sold off and there would be changes to the financial and management structure as a result. This action would be necessary to off-load a portion of its large debt burden and thereby reduce the risk of total financial collapse.

The increasing risk of financial distress could have been initially indicated by debt exposure (TL/TA and LC/SC) and overtrading (FA+I/NC), but from the non-financial perspective, problems would be reflected as follows:

Fi4 – acquisition of large numbers of additional centres at arguably too high a price

Fi5 – a small board, dominated by a strong CEO

Fi8 – high levels of debt to finance the acquisitions

Fe1 and Fe2 – some earlier critical commentary on acquisition strategy and levels of debt, plus dramatic fall in share price (43% in one day) associated with a substantial drop in reported profit, mainly due to debt servicing costs.

Summary

To summarise, the following factors comprise the model presented in this thesis:

X_1 (working capital/total assets)

X_2 (retained earnings/total assets)

X_3 (EBIT/total assets)

X_4 (market value of equity/book value of debt)

CFFO/TD (cash flow from operations to total debt)

CFFO/TCI (cash flow from operations to total cash inflows)

CFFO/CL (cash flow from operations to current liabilities)

CFFO (cash flow from operations)

(FA+I)/NC (fixed assets plus inventory/net cash)

TL/TA (total liabilities/total assets)

LC/SC (loan capital/share capital)

NFS (a summarised risk score based on the F_i and F_e indicators)

Data for the selected 47 failed and 35 non-failed companies have been applied to the model and the results analysed and discussed in Chapter 5.

3.8 Conclusions

This chapter has dealt with the process involved in formulating the predictive model, as discussed in the thesis objectives established in Chapter 1. The prior research analysed in Chapter 2 generally supports the concept of a model-based approach to predict corporate failure, due to its convenience, consistency and overall robustness, but this support is not without some reservations (refer Chapter 2, Section 7). Section 5 in this chapter extends the discussion to include consideration of document analysis, on which the model collation relies heavily for the sourcing of both financial and non-financial components. In particular, from the financial-data perspective, the convenience and relatively easy accessibility of company annual reports, and the financial statements they contain, which provide the accounting and cash-flow input, is balanced against some of the possible areas of concern relating to the preparation of

those financial reports. However, this is a matter for analysts of the model output to be aware of in reaching conclusions about individual company performance, rather than a restriction on the use of the model or a criticism of the robustness of the model output (which is discussed at length in Chapter 5). Whilst it is acknowledged that non-financial assessment carries a degree of risk due to the level of subjective judgement, such non-financial data in the model proposed in this thesis is very much providing a supporting role to the financial data, rather than operating as a primary indicator. The model results discussed in Chapter 5 do show that the NFS component appears to embellish the predictive integrity of the model but, due to a number of compromising factors discussed in the previous section, this positive benefit is largely restricted to the most recent reporting period or the period immediately preceding the failure event.

Discussion of the statistical methodology applied to the model data testing and introduced in Section 7 of this chapter is expanded in Chapter 5. Section 4 introduced the database-component structure. Chapter 4 provides brief backgrounds to the 46 companies in the Failed dataset and the 35 companies in the Non-failed dataset.

Chapter 4

Database Selection

4.1 Introduction

The testing process involved analysis of data for Australian Stock Exchange-listed businesses during the last years of life up to a maximum period of 10 years, depending on the length of existence of the company and the actual availability of data, prior to reaching an identified failure position as described. Two datasets, Failed and Non-failed, as described in Chapter 3, were selected for data extraction and analysis by the proposed logistic regression model, with the objective of deriving a failure-probability indicator for each of the dataset members. The use of exclusively Australian business data complies with the fundamental objective of the model, which is to focus, at least initially, on application to the Australian business scene.

The objective of this chapter is to introduce and provide some limited background information about the 47 companies selected for the Failed database and the 35 selected for the Non-failed. Although this adds little research value to the analysis to follow in Chapter 5, it does provide the reader with insight to the structure of the databases and therefore aims to enhance understanding of the model's limitations.

Financial data has been sourced from Aspect Huntley's FinAnalysis database package, which provides financial and annual-report data, market price movement and a variety of other useful information for all listed and delisted companies on the ASX as far back as 1995, and in some cases beyond. Companies selected for analysis have been drawn from the industry sectors of materials, construction and energy, which have degrees of similarity and, together, provide a reasonable-sized database from which to extract the datasets.

The process of dataset selection was discussed in Chapter 3, Section 4. The purpose of this chapter is to provide some brief background to each of the companies comprising the selected datasets.

4.2 Failed dataset

1. Aerosonde Holdings

Global airborne data-gathering utilising small robotic aircraft for long-range monitoring, data collection and surveillance. Previous principal activity was in the exploration of platinum-mining interests.

2. Alamain Investments

Management of a cold-storage facility in Schenzhen, China and the promotion of logistical services such as the sale of software, delivery of refrigerated products and the provision of marketing services.

3. *Australian Plantation Timber*

Establishment, rental and management of hardwood forestry plantation projects in Western Australia, South Australia, Victoria and Queensland. The company had also entered into agreements for sale of woodchips and promoted commercial forestry through managed investment schemes by leasing timberlots to growers and providing finance for approved participants.

4. *Australian Topmaking Services*

Establishment and operation of independent-commission wool-combing plants in Australia. Also operated a processing plant at Parkes, in New South Wales.

5. *Australian Kaolin*

Involved in developing kaolin deposits at Skardon River on the Cape York Peninsula in Queensland and at Inverell in NSW. Administrators were appointed on 11/05/1999 following failure of funding negotiations and the company was put into receivership in August 2000. Delisting occurred on 30/08/2001.

6. *Australian Resources*

Involved in copper and gold mining in Queensland and Western Australia. Delisted 29/10/1999.

7. *Barrack Mines*

Gold and base-metal exploration and production, silicon production and mining investment.

8. *Carlovers Carwash*

Involved in the development of franchised and company-operated self-serve and automatic carwashes. Also held a 60% interest in the movie-rental company Video Ezy Australia. Delisted 4/3/2003.

9. *Centaur Mining and Exploration*

Mining, development and exploration interests, located near Kalgoorlie, Western Australia. Receivers were appointed in March 2001.

10. *Central Norseman Gold*

Gold mining and exploration. Delisted on 01/02/2002.

11. *Chameleon Mining*

A minerals-exploration company that focused primarily on the exploration and evaluation of gold prospects and mining projects in Fiji and Australia. In November 2004 an application to wind up the company was filed by its creditors. Official liquidator was appointed in December 2004, aiming to sell the company or its assets.

12. *Child Care Centres Australia*

Delivery of child care services through a network of private long-day-care centres to parents of children aged between 0 and 6 years, together with before- and after-school care to other children as appropriate.

13. *China Convergent Corporation*

Provided TV-hosted web subscription services including development of broadband web TV and cable-integrated TV. Listed on ASX but operated out of China.

14. *Clifford Corporation*

Operated within the automotive industry in the design, manufacture and assembly of motor coaches, buses and specialised vehicles, together with the provision of management, consulting and administration services.

15. *Coplex Resources*

Oil and gas exploration, development and production.

16. *Cudgen Rz*

Mining and marketing of rutile, ilmenite, titanium in the Asia Pacific region, as well as the production of heat- and wear-resistant ceramic products and products for the ceramics industry. Delisted on 28/07/1998.

17. *Denehurst*

Controlled and operated the Woodlawn mine, a copper, zinc and lead mine situated northeast of Canberra, and leased and managed the No. 6 Jetty (Port Kembla Gateway) in the Outer Harbour of Port Kembla, New South Wales. The company also owned and operated the Metropolitan Colliery at Helensburgh, south of Sydney, and controlled mining interests in various parts of New South Wales and Victoria. Delisted on 04/03/1999.

18. *Ectec*

A predominantly electronics-based company that manufactured electrical switchboards, control panels, motor-control centres and fire-protection centres, performed general electrical installations and designed and manufactured materials-handling equipment including port-side container cranes and port-side equipment. Delisted on 31/08/2001.

19. *Farnell and Thomas*

A light-engineering company engaged in the manufacture, marketing and distribution of cast-iron municipal products, metal rollformed building products and cutting systems, as well as the sale, manufacture and service of laser, plasma and waterjet machine tools.

20. *Federation Group*

Resources (exploration and investment in gold and minerals, primarily in Victoria, Queensland and Senegal, West Africa), energy storage (battery technology) and pigment manufacturing.

21. *Golden West Refining Corporation*

A refiner, fabricator and recycler of precious metals, providing services to mining companies, manufacturers, merchant and central banks, and investors. Processed any material containing economic concentrations of precious metals, including gold refining, silver refining, electronic scrap, fabrication and component recycling. Also provided technical advice and services to the precious metal industry, including refinery design, laboratory design, sale of technology, technical training, accreditation and analytical services. Delisted on 30/08/2001.

22. *Greyhound Pioneer Australia*

An Australian-owned national coach company whose operations included national express, tour and charter coach services, organisation and merchandising of holiday tour packages and the carriage of freight on the express-coach network. Receivers and managers were appointed to the company in June 2000. Delisted on 28/02/2001.

23. *Huadu City Developments*

Listed on the Australian Stock Exchange (ASX), but primary investments were in toll roads in Huadu City, Guangdong Province, China.

24. *Henry Walker Eltin Group*

An Australian company with international operations in mining, engineering, land development and environmental-management services. Under administration since January 2005.

25. *Investment Austasia*

Investment in China.

26. *Ion*

Manufactured automotive products and provided a road distribution network throughout Australia for the petroleum and liquid petroleum gas (LPG) industry. Announced it had entered into voluntary administration on 7 December 2004 due to its inability to meet the capital-expenditure commitments required to complete its then- current growth projects.

27. *Jennings Group*

Building, contracting, land development, provision of retirement and elderly care facilities and investment.

28. *Kinetic Power*

Production of specialised industrial battery products for a number of uses including uninterruptible power supplies, motive power, standby power, emergency lighting, medical and portable equipment, telecommunications, electrical products and emergency exit signs.

29. *Laverton Gold*

Gold production and exploration for and development of viable mining projects, investments in the resource industry and share trading.

30. *Macraes Mining*

Gold mining, mineral evaluation and development and exploration.

31. *Milnes Holdings*

Manufacture and distribution of PVC pipes, fittings, metal products and polyethylene fittings in Australia and New Zealand.

32. *M.I.M. Holdings*

An Australian-based international mining and processing company with operations in Australia, the UK and Argentina producing copper, gold, zinc, lead, silver and coal.

33. *National Forge*

Manufacture and marketing of a wide range of forged-metal components for automotive, aerospace, golf and other applications. Entered receivership in October 2002.

34. *Newmont Yandal Operations*

Gold mining operations in Western Australia. Delisted in February 2003.

35. *Non-Ferral Recyclers*

This company was Australia's largest secondary aluminium and copper alloy producer, as well as a substantial trader and recycler of both non-ferrous and ferrous metal scrap. It had branches and subsidiaries in all mainland states of Australia, operations in New Zealand and Scotland, aluminium-smelting activities in Melbourne, Sydney and Glasgow and copper-smelting activities in Melbourne, as

well as recycling, scrap collection and sales centres across Australia and in New Zealand.

36 *Otter Gold Mines*

Gold mining and exploration with interests in Australia and New Zealand.

37 *Pasminco*

An integrated mining, smelting and marketing business primarily producing zinc, lead and silver in concentrates and metal form. On the 19 September 2001, the company appointed voluntary administrators and ceasing trading on the ASX.

38. *Phoenix Technology Corporation*

Development of technology for transforming waste into usable products such as building materials. Operations in China. Secured three separate investment funding arrangements over 2001 but, in each case, the other party defaulted on their commitments.

39. *Planar Semiconductor Inc.*

A research and development company that manufactured semiconductor wafer cleaning technology.

40. *Recruiters Australia*

Corporate and government recruitment. Proceeded into a deed of company arrangement in March 2003.

41. *RGC*

Exploration, development and exploitation of natural resources.

42. *Ross Mining*

Exploration, development and production of gold in Australia and the Solomon Islands. Delisted on 29/05/2000.

43 *Sons of Gwalia*

Australian-based gold and tantalum producer and explorer. Suspended from quotation following the appointment of voluntary administrators in September 2004.

44. *Stanilite*

Manufacture and distribution of emergency lighting systems; design and manufacture of electronics and communications equipment; the development of electronic data systems; the integration of navigation and communication systems for civilian and naval vessels; and the provision of service and repair facilities for communications and electronic equipment.

45. *Stockford*

Provider of accounting, financial, business, human resource and IT service solutions with offices in Australia, New Zealand and the UK. Entered voluntary administration in February 2003 following the poor performance of its core business for 2002.

46. *Strarch International*

An engineering company involved in the structural design, engineering and manufacture of the components of the Strarch Building System, and the licensing of the technology in Australia, North America and Asia. The company is being

liquidated following default on a joint-venture contract with Multiplex to provide supplies for and co-build heavy maintenance hangers for Qantas Airways Limited at Brisbane airport. Administrator appointed in November 2003; entered voluntary liquidation on 11 March 2004.

47. *Target Resources*

A Sydney-based company involved in gold exploration in Victoria, Queensland and Western Australia. Securities suspended from official quotation on 18/04/1997, following the lodgement of the court order approving a scheme of arrangement with Mining Corporation of Australia Ltd. Delisted on 06/05/1997.

4.3 Non-failed dataset

1. *Air New Zealand*

An international and domestic airline group that is publicly listed on both the New Zealand Stock Exchange and Australian Stock Exchange. The New Zealand Government is the major shareholder, holding 76.3% of ordinary shares on issue. The airline focuses on providing air-passenger and cargo-transport services to, from and within New Zealand, serving 51 cities in 13 countries. In the financial year to June 30, 2007, the airline carried almost 12.5 million passengers.

2. *Alcoa*

The world's leading producer of primary aluminium, fabricated aluminium and alumina. The Company is active in all major segments of the industry from bauxite mining, refining to alumina and production of aluminium metal and flat-rolled products such as plate, sheet and foil. In addition to aluminium products and components, Alcoa also makes and markets consumer brands including Reynolds Wrap, Alcoa wheels, and Baco household wraps. Among its other businesses are closures, fastening systems, precision castings and electrical distribution systems for cars and trucks.

3. *Amadeus Energy*

Management, exploration and development of oil- and gas-producing properties in the USA and Australia.

4. *BHP Billiton*

The world's largest diversified-resources group, with a global portfolio of high-quality assets. Core activities comprise the production and distribution of minerals, mineral products and petroleum at a variety of locations worldwide.

5. *BlueScope Steel*

A major steel company in Australia and New Zealand, supplying flat-steel products to the building, construction, manufacturing, automotive and packaging industries. It operates in Australia, New Zealand, Asia, the Pacific and, through a joint venture, the US, and exports to the US, Asia, Europe, the Middle East and the Pacific.

6. *Brambles*

A global support-services company operating in 45 countries across Europe, the Americas and the Asia Pacific. Services are provided by the subsidiaries CHEP (transportation products such as pallets and plastic containers) and Recall (manages the secure storage, retrieval and destruction of physical and digital information for nearly 80,000 customers worldwide).

7. *Cabcharge Australia*

Cabcharge Australia (CAB) operates a national charge facility for the payment of taxi fare and related business surcharge services without using cash, and is designed to provide government departments and businesses of every size control over taxi-travel expenditure, accounting and records.

8. *Caltex Australia*

The largest refiner and marketer of petroleum products in Australia with operations in all states and territories. Its refining and supply functions purchase crude oil; arrange its transportation to its refineries; refine the crude into petrol, diesel, jet and specialty products; and distribute the products to a network of terminals around Australia. Its marketing department promotes and sells CTX fuels, lubricants, specialties and convenience-store goods through a national network of approximately 1,800 branded service stations and 61 branded resellers.

9. *Capral Aluminium*

A supplier of aluminium extrusion and sheet products in Australia and New Zealand. Also offers value-adding services including powder-coating anodising and light fabrication.

10. *Coffey International*

Operates a broad range of services including environment, ground engineering, international development, mining, training and project management.

11. *CSR*

A major Australian diversified group of companies with operations in Australia, New Zealand and Asia. It has four principle businesses:

CSR Building Products: The division manufactures plasterboard, fibre cement, clay bricks and pavers, aerated lightweight concrete, roofing tiles and services, glasswool, rockwool and foil insulation. CSR Building Products holds a suite of brands including Gyprock plasterboard, Monier concrete roof tiles, Wunderlich terracotta roof tiles, Bradford insulation and PGH bricks and pavers.

CSR Aluminium: Part owner of an aluminium smelter in NSW, its products include mould ingots, extrusion billets and rolling slabs; it serves Japan and other Asian markets.

CSR Sugar: The largest producer of raw sugar in Australia.

CSR Property: Industrial and residential property development.

12. *Goldstream Mining (renamed IMX Resources)*

A minerals-exploration company with projects located in Africa and Australia.

13. *Hill End Gold*

An Australian-based minerals-exploration company focused on the exploration for gold near Hill End in Central New South Wales.

14. *Hills Industries*

Manufactures and distributes electronics, home, hardware, building and industrial products in Australia and overseas. The electronic security and entertainment division supplies antenna and TV and security systems. The home and hardware division supplies a wide range of products, many of which are made from tubular steel. The building and industrial products division makes metal-based construction products such as roofs, floors, pipes and tubes.

15. *Iluka Resources*

A significant mineral-sands miner and heavy-minerals producer. Core products are rutile and ilmenite (for paint pigments, protective coatings, titanium metal and welding electrodes) and zircon (for ceramic glazes, refractories and wear-resistant products). Operations are located in Western Australia, Queensland, Victoria, South Australia and Virginia (USA).

16. *James Hardie Industries*

A leading international building materials group that produces a wide range of fibrocement building materials used in the exterior and interior of residential and commercial buildings, from exterior cladding and internal lining to pipes, bracing, decorative elements and fencing. It is the dominant manufacturer of fibre cement in the US, Australia, New Zealand and the Philippines, and is also establishing itself on the European market.

17. *John Shearer Holdings*

A manufacturer and distributor of agricultural machinery, specialty transport equipment and concrete transit mixers, and industrial steel shelving and storage systems.

18. *Kimberley Diamond*

Diamond mining, exploration and development in the Blina and Ellendale regions in Western Australia. Delisted 17/3/08.

19. *Leighton Holdings*

The parent company of Australia's largest construction and contract mining group. The group's activities focus on contract and project management and property development in Australia and South East Asia, operating through the following companies:

Leighton Contractors: a project developer and construction contractors often involved in complex large-scale projects from development through to the ongoing maintenance of the constructed facility. The company serves the telecommunications, land transport, building, civil and process engineering and contract mining industries across Australia.

Thiess: an Australian integrated engineering, construction and mining-services provider to the mining and resources development, environmental services, non-residential building, civil and process engineering, facilities management, telecommunications and oil and gas utilities services industries. Operations are undertaken in Australia, South-East Asia and the near-Pacific region.

Leighton Asia: key business areas are civil engineering and infrastructure, building, rail, mining and resources, marine engineering, process engineering and telecommunications. Operates in Asia.

John Holland: a construction and engineering company, with core competencies in non-residential building construction, civil engineering construction, rail maintenance, telecommunications services, asset management and heavy industry and process engineering. John Holland operates in Australia.

Leighton Properties: Undertakes commercial and industrial property-development projects and management of completed projects along the east coast of Australia.

20. *Macquarie Airports*

An international airport fund with interests in Sydney, Rome, Bristol and Birmingham.

21. *Macquarie Infrastructure Group*

One of the largest developers and owners of toll roads in the world, with a portfolio comprising 11 toll roads across seven countries. As at 30 Jun 2007, geographic split by value was 9% Australia, 43% UK/Europe and 49% North America.

22. *Midas Resources*

A minerals-exploration company with gold projects in Australia, USA and China, with its main focus on the exploration and development of the Lake Carey Project,, located near Laverton, Western Australia.

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23. *Mount Gibson Iron*

Exploration, development and mining of iron ore in Western Australia.

24. *National Hire Group*

An equipment-hire business based in eastern Australia, it provides equipment, training, service and technical advice. It has five operating divisions: National Hire Tools and Equipment, National Hire Portaroo, National Hire Site-Shed, National Hire Hi-Lift and National Hire Pumps.

25. *Newcrest Mining*

Australia's largest independent gold producer, with mines in NSW, WA, Queensland, Fiji and Indonesia.

26. *Newmont Mining*

The world's largest gold producer, operating in the United States, Australia, Peru, Indonesia, Canada, Uzbekistan, Bolivia, New Zealand, Ghana and Mexico.

27. *Nylex*

A diversified industrial manufacturer and distributor of building, automotive and plastics products such as laminates for kitchen and furniture applications, a range of storage and handling solutions (including chemical tanks, pallet systems, industrial

hose, intermediate bulk containers and cool bins), mobile garbage bins, a range of products to the car companies and second tier suppliers including seating, rubber sealing and anti-vibration systems, internal door trim assembly systems, metal, foam, plastic and carpet components, a range of garden, hardware and houseware products including Nylex, Gardena and Esky, and a range of low-cost water-conservation products.

28. *Orica*

A leading manufacturer of industrial and specialty chemicals, commercial explosives and mining chemicals, paints and other consumer products in Australasia and serving markets worldwide.

29. *Programmed Maintenance Services*

Provides a range of property-maintenance services to commercial, industrial and institutional property owners, offering long-term contract services. It operates contract painting in Australia, New Zealand and the United Kingdom and provides building, grounds, corporate imaging, industrial maintenance, labour hire, marine and engineering services.

30. *Qantas*

Australia's major airline operating domestic services (through Qantas domestic, QantasLink and budget airline Jetstar) and international services (approximately 700 international flights every week to and from Australia). Qantas also offer holiday travel activities, catering facilities, ground handling of baggage and freight and engineering and maintenance services. As at 1st August 2009 Qantas operates a fleet of 234 aircraft.

31. *Rio Tinto*

A diversified mining company holding a portfolio of international interests in aluminium, copper, diamonds, gold, coal, iron ore and industrial minerals. It has operations spanning six continents and is the third-largest mining company in the world.

32. *Santos*

An oil and gas exploration and production company producing natural gas, liquefied natural gas, crude oil, ethane and liquefied petroleum gas for both domestic and export markets. It has interests and operations in Australia, Indonesia, Papua New Guinea, Vietnam, India, Kyrgyzstan, Egypt and the United States and, through its interest in the Darwin LNG project, is a producer of liquefied natural gas (LNG), which is exported to customers in Japan.

33. *Steamships Trading Company*

A diversified trading company operating in Papua New Guinea (PNG). Its divisions include automotive distribution, hardware supply, industrial operations, manufacturing, hotel management, retail merchants, property and shipping.

34. *Transfield Services*

An international provider of operations, maintenance, asset-management and project-management services. It operates in Australia, New Zealand, the United States, the United Arab Emirates, Qatar, South East Asia, India and Canada across diverse industries, including mining and process, hydrocarbons, roads, rail and public transport, water, power, telecommunications, facilities management and defence.

35. *Woodside Petroleum*

An Australian-based oil and gas company that sells liquefied natural gas, natural gas, crude oil, condensate and liquid petroleum gas to various large customers. WPL has primary business segments in North West Shelf Ventures, Australia Business Unit, Middle East & Africa Business Unit Exploration, United States of America Business Unit, and Group and Unallocated.

1.4 Conclusions

Data from the above companies in the two datasets form the basis of the model development and results for discussion in Chapter 5. As these companies have been extracted from a total of only three GICS business categories, further development of the model will require extended database development to reflect the differing business circumstances and accounting treatments across the categories.

Chapter 5

Test Results and Analysis

5.1 Introduction

This thesis so far having established the research justification and objectives in Chapter 1, analysed the previous literature in Chapter 2, discussed the research methodology and model development in Chapter 3 and provided some brief background to the dataset components in Chapter 4, Chapter 5 will focus on testing the model and analysing the results. Section 2 commences with some discussion of logistic regression, the primary statistical tool used for the model, and explains why this particular approach is considered preferable to other popular methods, such as multiple discriminant analysis (MDA), that have been used extensively by some previous researchers. Section 3 will explain the process of the model application from input through to output. Section 4 will then summarise and analyse the output results.

As discussed in chapters 2 and 3, it was considered that the fail/non-fail classification approaches adopted by MDA-based models, such as Altman's Z-score and others, were restrictively definitive to the point that the results obtained from such models arguably lack integrity and substance. This argument largely arises from a pragmatic view that, given the exigencies and uncertainties inherent in the measurement and

interpretation of business performance, it is not possible to predict or define a failure event simply by comparing a model score relative to a predetermined cut-off point.

One of the key risks to this approach is that such cut-off points are typically allocated by a progressive manipulation of weights attached to each component of a model to maximise predictive success based on the use of historical data. Whilst it is recognised that the use of historical data is virtually unavoidable in the formulation of any model, the resulting definitive cut-off point is not only unrealistic but also potentially dangerous. Apart from the ease of misclassification, particularly when performance scores are close to the point of delineation, the danger of such misclassification is emphasised if a financially healthy company is classified as potentially and imminently failing. If such information becomes generally available, the consequent risk is that of a self-fulfilling prediction: reaction from customers, investors and suppliers to such information may predicate a performance decline that may otherwise not have happened.

An example of such possible misclassification is in the airline industry. Under Altman's model, for instance, an apparently healthy firm such as Qantas¹ would be categorised as a failure, as its Z-score is below the cut-off point. Closer examination of the result shows that this conclusion is principally derived from a low X_1 factor (working capital/total assets), a liquidity factor that is heavily weighted in the model. Airlines such as Qantas, which transact a large proportion of sales and related cash receipts often well in advance of service delivery, typically have a peculiarity in their accounts in the form of elevated levels of current liabilities associated with unearned

¹ Qantas is Australia's largest airline. A brief description of its major activities is included in Chapter 4 as part of the Non-failed dataset.

income derived from prepayment of flights by customers. As a result, working capital can typically be very low, and often negative.

Although this phenomenon may be mitigated through development of a Z-score exclusively for the airline industry, evidence indicates a sizeable degree of variability among airlines, depending on the extent of availability of lower-cost, early-payment fares, typically with no cancellation refund and a high alteration penalty. A definitive fail/non-fail delineation point is clearly not appropriate for the airline industry, nor indeed for many others (such as the mining industry, where companies are usually in different stages of development ranging from revenue- and profit-producing activity, right down to embryonic development where little or no revenues are flowing in and companies very much depend on continuing injections of investment and/or debt funding).

A strong case can be developed for logistic regression over MDA, as it delivers a probability-of-failure result, rather than a definitive fail/non-fail verdict. Qantas, for instance, rather than being classified as an outright failure under MDA based Z-score, is shown under the logistic regression based model used in this thesis as having a relatively low probability of failure in the latest reporting year and a declining probability of failure over a five-year trend period. This is emphasised even further with the inclusion of additional factors such as cash flow from operations (CFFO) over the five years and a non-financial component in the most recent year.

5.2 Logistic Regression

In statistics, logistic regression is a regression model for binomially distributed response/dependent variables. It is useful for modelling the probability of an event occurring as a function of other factors. Many categorical response variables have only two values. For instance, in a medical study, the patient survives or dies. Or, in a marketing study a consumer switches brands or is loyal to one particular brand. For this thesis, a company fails or remains “healthy”. In these situations logistic regression can be used to determine the important variables related to the probability of these events. Logistic regression models these proportions as function of explanatory variables and helps determine which variables are important in whether a consumer switches brands, or survival or death of a patient, or failure or survival of a company.

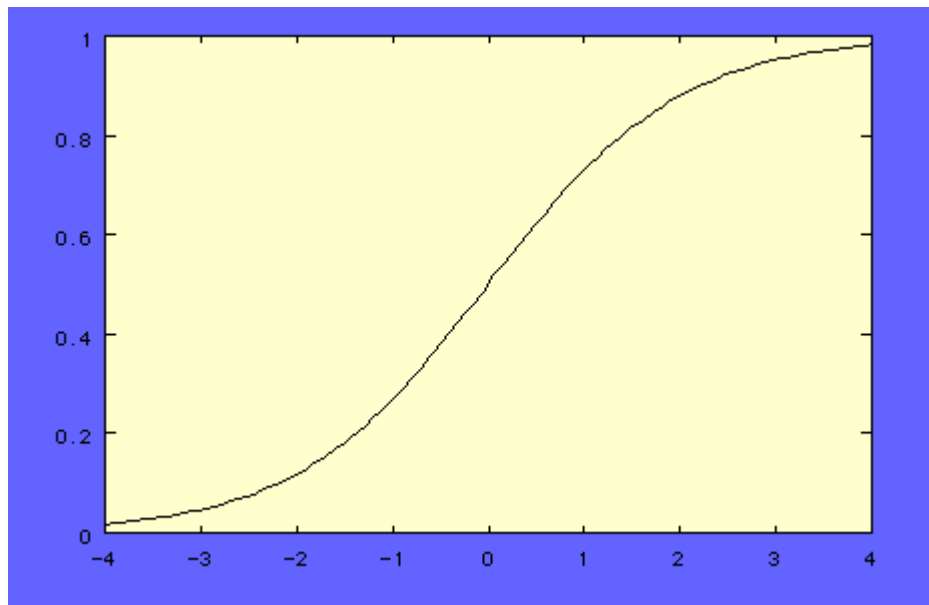


Figure 1: Typical Shape of a Logistic function

Logistic regression forms a predictor variable, which is a linear combination of the explanatory variables. The values of this predictor variable are then transformed into

probabilities by a logistic function (refer Section 4 below). Such a function has the shape of an S, and is shown in the figure above. The horizontal axis shows the values of the predictor variable, and the vertical axis shows the probabilities. In Figure 1 a value of -2 on the predictor variable corresponds to a probability of .12, a value of -1 on the predictor value corresponds to a probability of .27. (www.stattucino.com).

The statistical-analysis package used for developing the model is SPSS², but the primary tool used is logistic regression. As explained above, logistic regression is a statistical tool used for predicting an event's probability of occurrence. As it only became available in the 1970s, logistic regression was not considered in the development of early models such as Altman's Z-score, which was based on discriminant analysis when published in 1968. Still widely used, MDA has historically been popular due to its supposed ease of application and its claimed ability to define an event. However, its popularity has been declining because its results have become regarded as difficult to interpret (Dallal, 2001).

In practice, MDA determines a cut-off prediction value for the failure event, an approach which can be too restrictive and extremely sensitive to classification errors. MDA does not provide for examining the statistical significance of individual factors and can be manipulated by adjusting weights to improve results derived from an ex-ante analysis. As well, it can only be used with continuous independent variables; where such variables are categorical, or a mix of continuous and categorical, it is generally recognised that logistic regression is preferred. Discriminant analysis also depends heavily on the assumption that the independent variables are normally

² SPSS is a powerful statistical software package designed to help researchers apply modern statistical techniques to the analysis of data (Perera, 2006). Due to its versatility and relative ease of application, it is popular with many researchers across academic and non-academic spheres of activity. One of the many statistical tools provided by SPSS is logistic regression.

distributed and when this is not the case, problems in the estimating the discriminant function can result (Perera, 2006). Therefore, discriminant analysis is potentially problematic in that it requires certain normality assumptions that logistic regression does not. In addition, the emphasis with MDA is on putting results in groups, whereas logistic regression makes it easier to look at the underlying structure of the prediction ("what are the important predictors?").

Therefore, logistic regression is a technique for the analysis of data when the dependent variable is categorical and independent variables are quantitative or qualitative, and the assumption of multivariate normality is not satisfied (Perera, 2006). It allows for the prediction of the probability of a discrete outcome from a set of variables that may be continuous, discrete, dichotomous or a mix of any of these. Generally the dependent variable is dichotomous (0/1), such as the presence or absence of success. In the analysis for this thesis, the dependent variable is the failure (1) of a company or its lack of failure/continuing success (denoted by a 0); the model uses the independent variables to deliver a probability of failure. There is a strong argument to support the view that it is the most appropriate tool for this form of predictive analysis.

The logit estimation method and model evaluation is discussed in Section 3, and the results are analysed in Section 4.

5.3 The process

Following on from the discussion in Chapter 3, the results collated in the data source spreadsheet entitled “Modified Combined” (Appendix 5) were processed through the logistic regression component of the statistical analysis package SPSS.

The process introduced in Chapter 3 was:

1. Prepare the Failure Model Datasheet (Appendix 4). This spreadsheet collated data from FinAnalysis (the Aspect Huntley database described in Chapter 3) for each of the companies in the Failed and Non-failed datasets (Chapter 4). Sufficient data was extracted to calculate the X_1 to X_4 Z-score components, the cash-flow indicators of CFFO/TD, CFFO/TCI and CFFO/CL, the gearing indicators TL/TA and LC/SC and the Argenti overtrading indicator (FA+I)/NC. Descriptions of these factors were provided in Chapter 3.
2. Transfer data from the individual company format in the Failure Model Datasheet to an annual format as shown in the Modified Data Worksheets (Appendix 5). This allows for the collation and annualisation of all company data in the individual model variables for all companies in the two datasets going back a period of 10 years from the most recent financial reporting. In the case of companies in the Failed dataset, the most recent financial reporting period would equate to the final financial reporting period. It should also be noted at this point that, although 10 years’ historical data was initially extracted, only five years were used in the application of the model. This was due to the lack of support in the literature for going back any further than five years, and the inherent risks of doing so when one considers the potential diminution of model integrity due to the increased incidence of unknowns, a

factor already recognised in the general criticism of model reliability for the purpose of failure prediction.

3. Applying the F3 scoresheet for non-financial factors (Appendix 3), total scores were assessed based on the evidence of existence of the non-financial factors listed. Using primarily the annual reports of the dataset companies, supplemented by analyst reports and independent financial commentary sourced from websites and the financial media, scores ranging from 1 to 5 (1 being no evidence, 5 being strong evidence) were allocated for each factor. Once scores were collated for each company, a summary score of 1 to 5 was allocated based on the following total scores from the scoresheet:

Overall collated score of <20 =	summary score of	1
20-25 =		2
26-30 =		3
31-35 =		4
>35 =		5

The allocations of the individual non-financial factor scores and the summary score for each company are shown in Appendix 5. This approach, however, was only considered practical and appropriate for the most recent year of reporting. The reasons for this are discussed below.

4. Annual data was analysed in the binomial logistic regression component of SPSS using the predetermined base-model independent variables (see Table 1

below) and dependent variables of 1 for a failed company and 0 for a non-failed company. Further independent variables using the annual raw CFFO figures and the NFS factor for the most recent year were also developed. With the initial SPSS results delivering a preliminary model structure for each year, it was then possible to examine each variable against the adopted statistically acceptable significance level of 95%. For each year going back five years (including the most recent year of reporting), the model was progressively reconstructed and refined by a step-by-step progressive elimination of the variables in descending order of significance, until only the significant variables for each annual dataset were established. This resulted in a model structure for each year comprising only the significant variables as determined from the annual data. This process is illustrated in Table 1 which uses year 2 data with CFFO, but no NFS:

Table 1: Significance of Variables at Each Elimination Step (Y2 with CFFO)

Variables										
X ₁	.263	.239	.239	.255	.278	.209	.279	.293		
X ₂	.704	.667	.666	.656						
X ₃	.963									
X ₄	.412	.407	.375	.534	.523					
CFFO/TD	.944	.948								
CFFO/TCI	.269	.268	.267	.247	.206	.203	.182	.232	.187	
CFFO/CL	.822	.825	.690							
TL/TA	.224	.199	.191	.207	.166	.295	.207	.081	.021	.028
LC/SC	.277	.272	.271	.265	.286	.307	.323			

FA+I/NC	.321	.321	.322	.313	.301	.339				
CFFO	.006	.006	.006	.006	.005	.004	.004	.003	.003	.002
NFS										

The result of this process was a different version of the model for each year, based on the varying significance of individual components from year to year:

$$Y1 - 0.707 - 10.708(X_3) - 0.059(X_4) + 1.084(CFFO/TD)$$

$$Y2 - 0.263 - 2.425(CFFO/TCI) + 1.574(TL/TA)$$

$$Y3 - 0.548 + 1.03(CFFO/TD) - 1.031(CFFO/CL)$$

$$Y4 - 0.48 - 2.603(X_1)$$

$$Y5 - 1.199 - 4.369(X_1) - 1.635(TL/TA)$$

With CFFO added, the model construct changed:

$$Y1 - 1.332 - 3.723(X_1) - 7.57E-09(CFFO)$$

$$Y2 - \mathbf{0.13 + 2.296(TL/TA) - 8.79E-09(CFFO)} - \text{Appendix 6 example}$$

$$Y3 - 1.161 - 2.446(X_1) - 5.51E-09(CFFO)$$

$$Y4 - 1.311 - 3.61(X_1) - 5.81E-09(CFFO)$$

$$Y5 - 0.986 - 3.756(X_1) - 4.26E-09(CFFO)$$

And again with the further addition of the NFS factor in the final year:

$$Y1 - -4.265 + 2.981(NFS)$$

The significance results and the above model structure variants suggest some conclusions about the individual components as they apply to this particular dataset.

X₁ (working capital/total assets) – this was the most used of all of the Z-score components. It is the only variable in Y4 of the base model³, and is also one of only two variables for year 5. It is the only component, along with CFFO, for every year except year 2⁴. This can be seen in the second model construct, which includes the raw CFFO, on the previous page.

X₂ (retained earnings/total assets) – not significant for the data used.

X₃ (earnings before interest and tax/total assets) – only used for year 1 of the base model.

X₄ (market value of equity/book value of debt) – also only used for year 1 of the base model.

CFFO/TD (cash flow from operations to total debt) – used in the base model in years 1 and 3.

³ Refer Chapter 5, Section 3, Point 1 for a summary of the factors included in the base model.

⁴ Year 1 (Y1) refers to the most recent reporting period from which data was collected. For companies in the Failed dataset, this would be the latest reporting period prior to the failure event. For companies in the Non-listed dataset, this would be the most recent current reporting period at the time of data collation. Year 2 (Y2) is the next most recent in both cases, year 3 the next one before year 2 and so on. Data was collected going out as far as Year 10, but only Years 1 to 5 were used in the development of the model.

CFFO/TCI (cash flow from operations to total cash inflows) – only used in year 2 of the base model.

CFFO/CL (cash flow from operations to current liabilities) – only used in year 3 of the base model.

TL/TA (total liabilities/total assets) – significant for years 2 and 5 of the base model and year 2 with CFFO.

LC/SC (loan capital/share capital) – not significant for the data used.

(FA+I)/NC (fixed assets plus inventory/net cash) – not significant for the data used.

CFFO (cash flow from operations) – when added as a model input, was significant for all years.

NFS (non-financial score) – became the sole significant factor when incorporated in year 1.

5. The annual data for each of the dataset companies was entered into the model variants applicable for each year. The data derived from this process was then applied to a log calculation to determine the probability of failure. Sample

results of this process are shown for one company only in the spreadsheet headed 'Final Model Structure over Five-Year Period' (Appendix 6)

6. The results of the probability calculations performed in Appendix 6 for all companies in both the Failed and Non-failed datasets were summarised in the spreadsheet headed 'Summary of Results' (Appendix 7), which is the basis of the following analysis. The summary sheet collates probability results in the following formats:

- (i) Raw model data (excluding the NFS factor) for each year as shown in columns Y1, Y2, Y3, Y4 and Y5. Y1 is the latest, or in the case of the Failed dataset, the final year of reporting. Y5 is four years preceding Y1, thus providing a five-year result.
- (ii) CFFO as a raw figure (in addition to the ratio components contained in the original model format) is provided in additional columns for each year as shown in Y1+CFFO, Y2+CFFO, Y3+CFFO, Y4+CFFO and Y5+CFFO. Although this additional factor was initially added on an experimental basis, it proved to add a substantial degree of predictive capacity over the original raw model. This can be seen in the summary of findings below.
- (iii) For Y1 only, the non-financial indicator (NFS) discussed above is added both as a stand-alone with the Y1 model, and in addition to the CFFO factor. The results are shown in the Y1+NFS and Y1+CFFO+NFS columns. Interestingly, the results show that the power of the NFS factor, when utilised in Y1, overshadows the CFFO factor when the two are combined and therefore there is no statistical difference between the

two. There are, however, some concerns with the application of the NFS factor and these are discussed below.

5.4 Summary of Findings

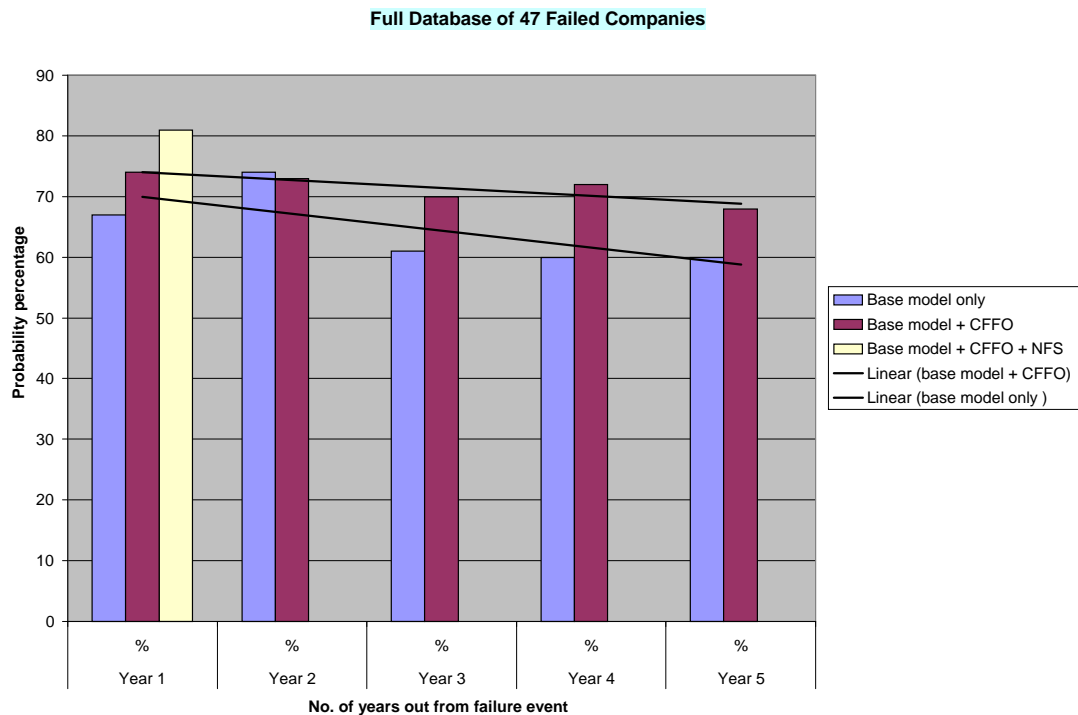
1. Failed Companies Dataset

Using the full dataset of 47 failed companies:

Table 2: Probability of Failure Using Three Model Variants

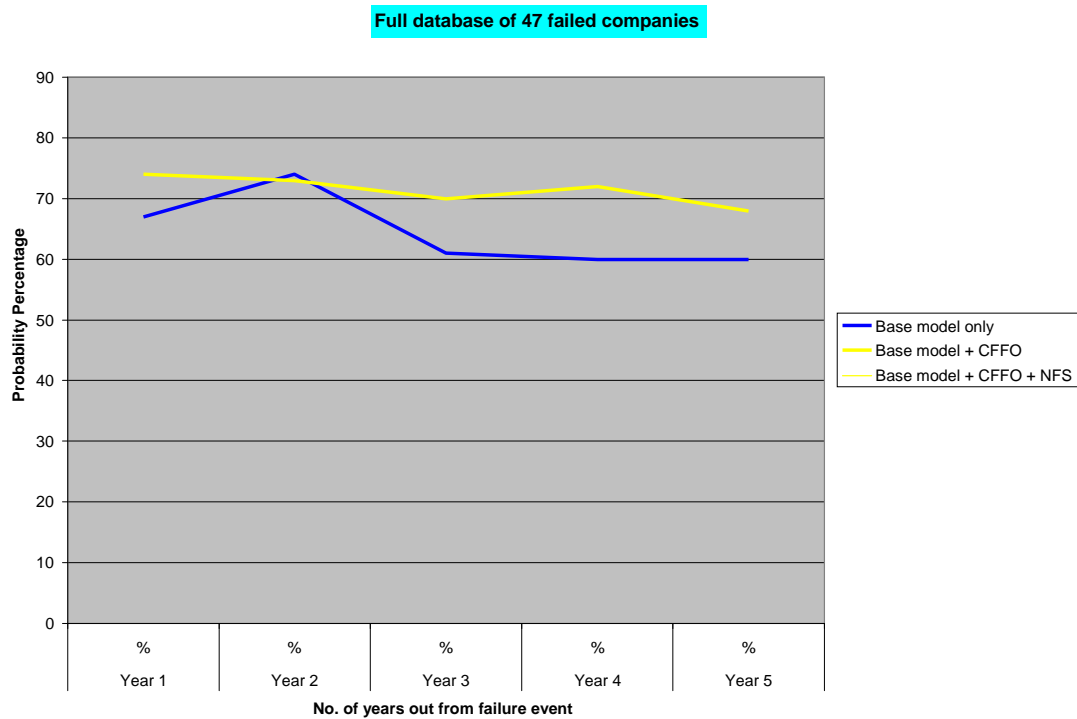
Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	67	74	61	60	60
Base model + CFFO	74	73	70	72	68
Base model + CFFO + NFS	81				

Figure 2: Full Database of 47 Failed Companies



The trend line for both the base model and for the base model including CFFO slope upwards from Year 5 to Year 1. This shows an increasing probability of failure as the company approaches the failure event. The higher level of trend line for the base+CFFO version indicates an overall higher probability of failure, illustrating the added predictive value of the CFFO component. The gentler slope results from a smaller degree of change in probability from Year 5 to Year 1, even though the Year 1 probability is higher. This illustrates the superior performance of the CFFO factor at flagging an earlier elevated risk, as much as five years out from the actual failure event. This trend and overall predictive superiority to the base model is also illustrated in the following line-graph version of the above bar graph.

Figure 3: Full Database of 47 Failed Companies



These results are reinforced with the following scenario variants using only those companies with a full five years of pre-failure historical data, and then only those companies falling in to each of the three failure categories as described in Chapter 3.

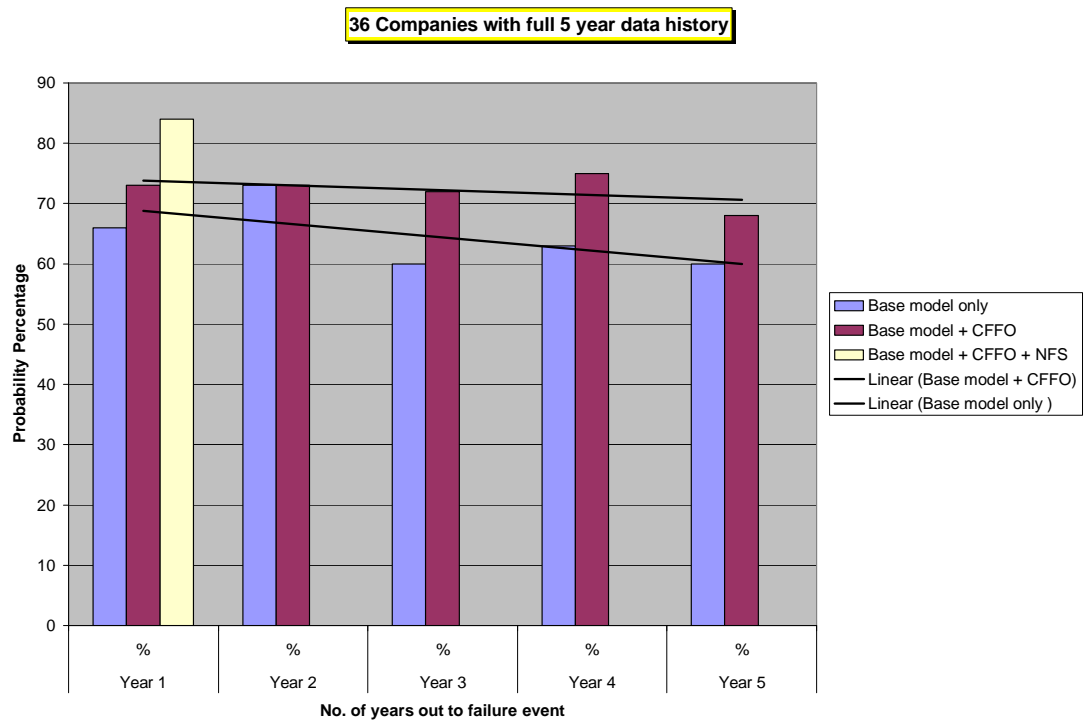
Using a modified dataset of only those 36 companies with a full five years data history:

Table 3: Probability of Failure Using Three Model Variants, Working with a Five-Year Data History

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	66	73	60	63	60

Base model + CFFO	73	73	72	75	68
Base model + CFFO + NFS	84				

Figure 4: 36 Companies with Full Five-Year Data History



Using a modified dataset of only those 14 companies that had Type 1 failure⁵:

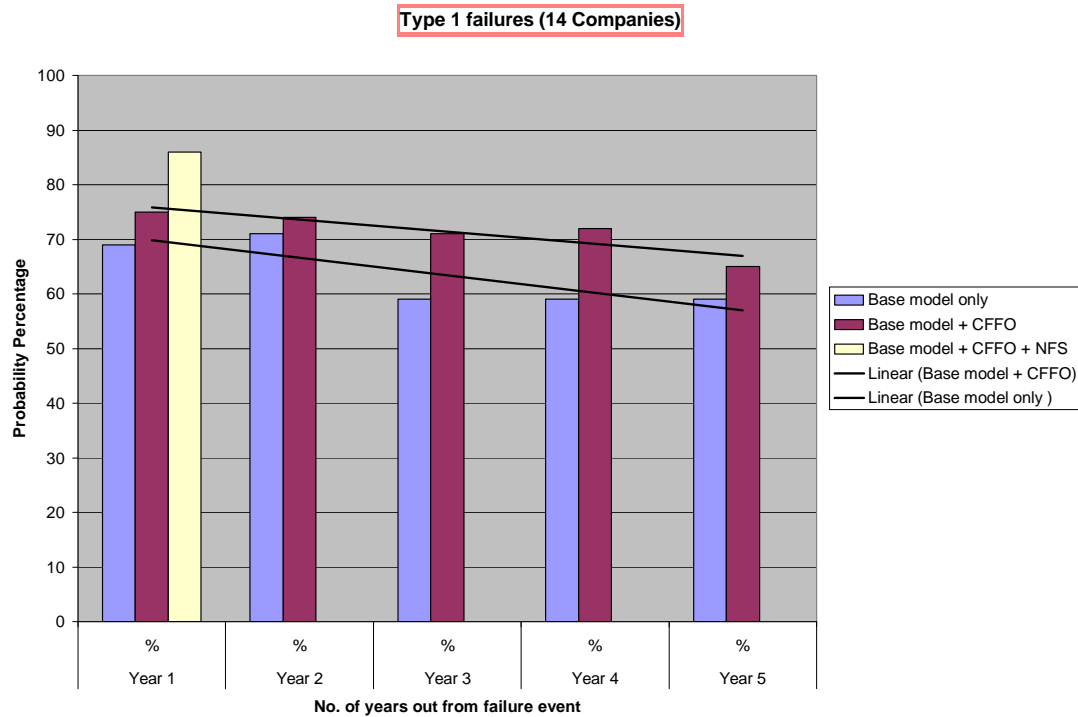
Table 4: Probability of Failure for Type 1 Failures, Using Three Model Variants

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	69	71	59	59	59
Base model + CFFO	75	74	71	72	65

⁵ The failure types 1, 2 and 3 are discussed in Chapter 3, section 3.

Base model + CFFO + NFS	86				
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Figure 5: Type 1 Failures (14 Companies):

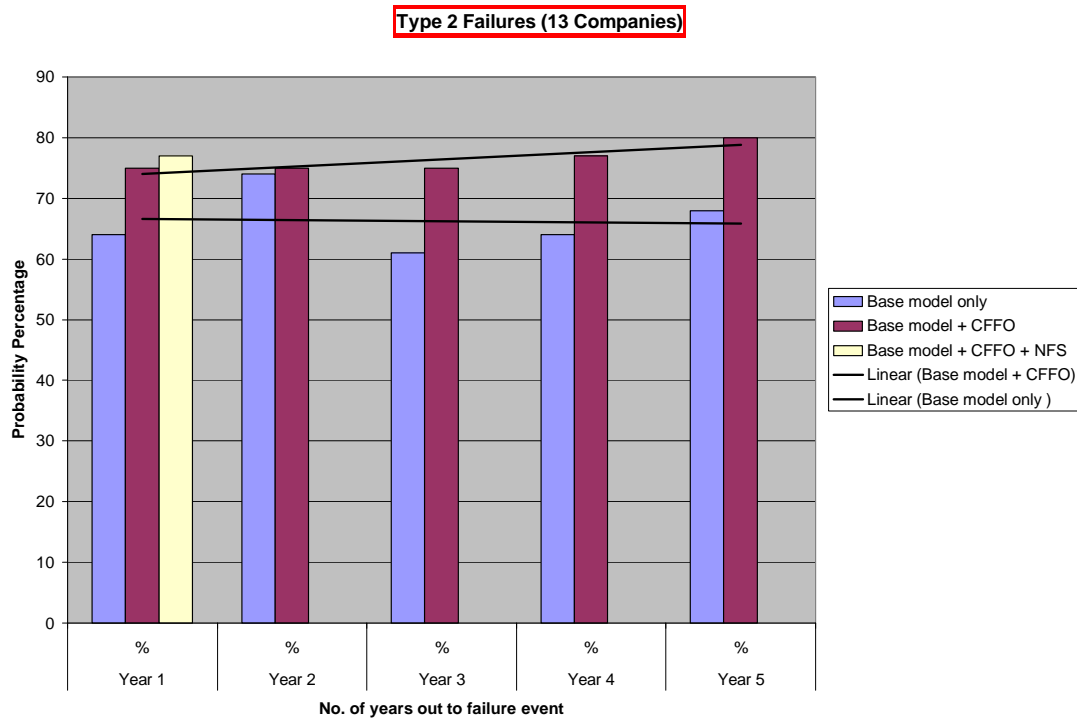


Using a modified dataset of only those 13 companies that were Type 2 failure:

Table 5: Probability of Failure for Type 2 Failures, Using Three Model Variants

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	64	74	61	64	68
Base model + CFFO	75	75	75	77	80
Base model + CFFO + NFS	77				

Figure 6: Type 2 Failures (13 Companies)



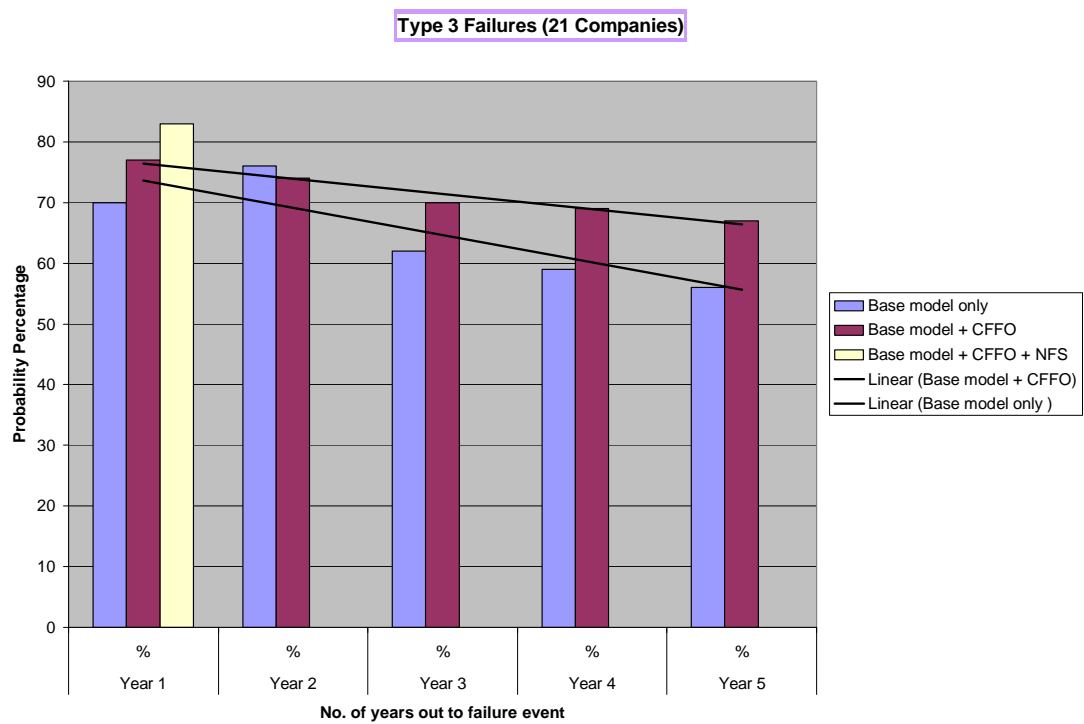
The trend line for the base+CFFO version actually diminishes in this variant. However, this does not indicate a decline in model performance closer to the failure event, because the probability of 75% is as strong a result as given by any of the other variants. Rather, the declining trend is an illustration of the predictive strength of the model five years out from the failure event. This longer-term predictive capacity is a particular strength of the model.

Using a modified dataset of only those 21 companies that were Type 3 failure:

Table 6: Probability of Failure for Type 3 Failures, Using Three Model Variants

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	70	76	62	59	56
Base model + CFFO	77	74	70	69	67
Base model + CFFO + NFS	83				

Figure 7: Type 3 Failures (21 Companies)



2. Non-failed dataset

Using the full dataset of 35 non-failed companies

Table 7: Probability of Failure Using Three Model Variants

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	44	63	54	54	49
Base model + CFFO	36	36	39	38	42
Base model + CFFO + NFS	26				

Figure 8: Full Dataset of 35 Non-Failed Companies

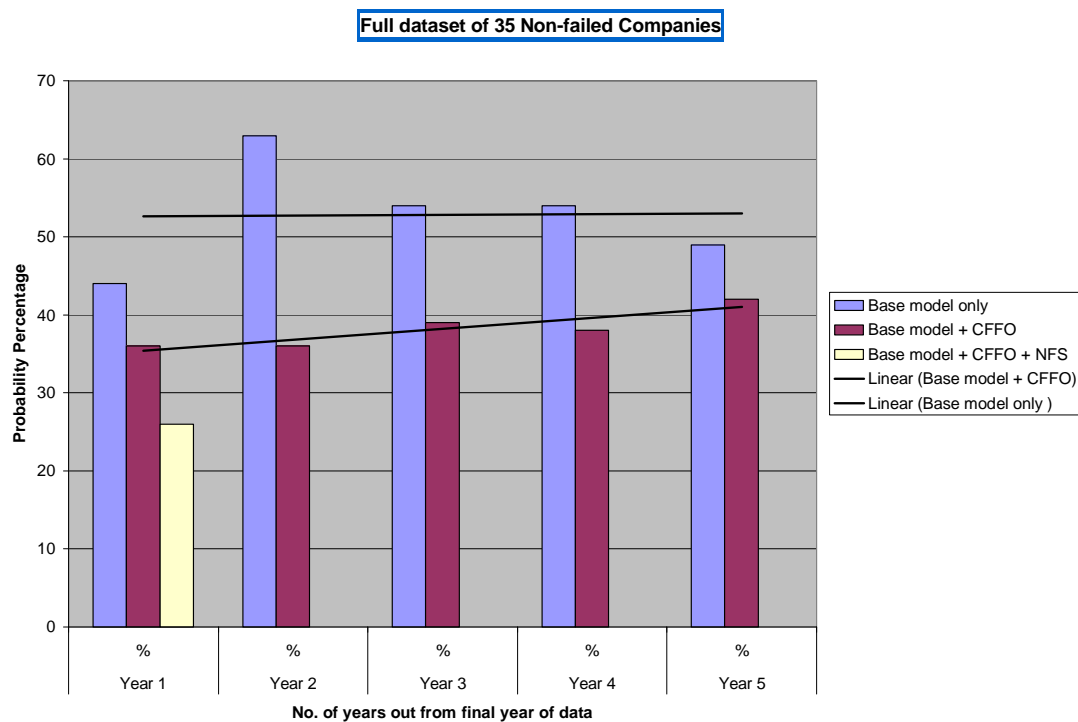
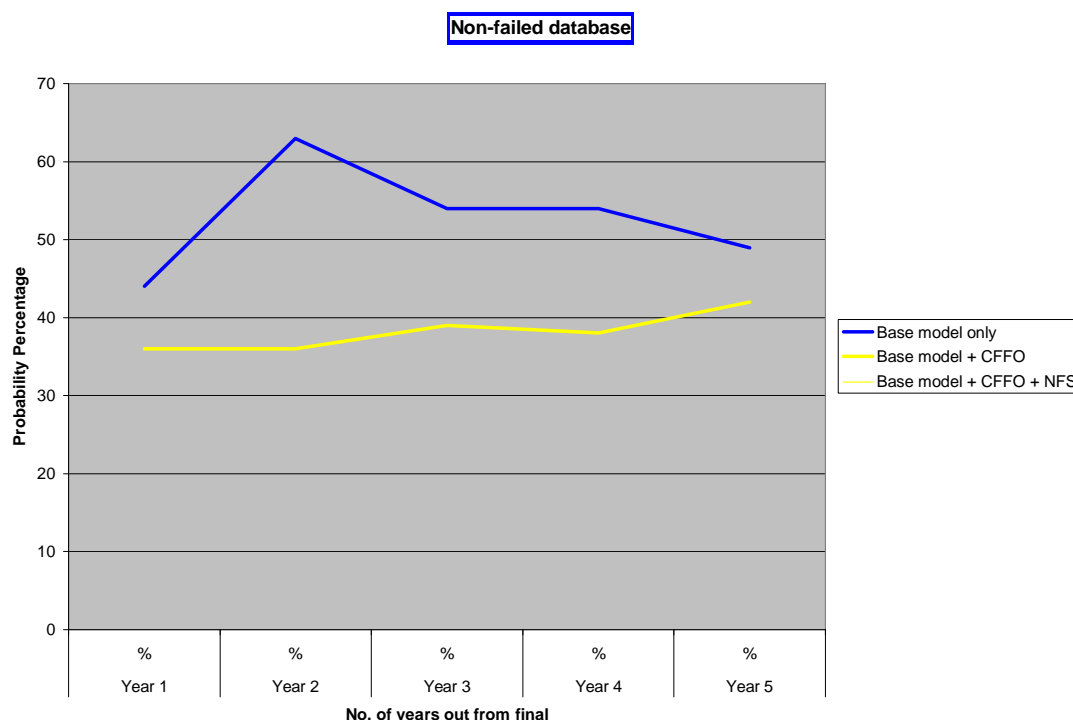


Figure 9: Non-Failed Dataset



Again, the model performs as desired, with low and declining probabilities of failure as time progresses to the most recent reporting period. In this case the base+CFFO version shows a lower failure probability relative to the base model only, once again showing the enhanced performance delivered by inclusion of the raw CFFO data.

What do these results suggest?

With some individual exceptions discussed below, the model appears to perform broadly as required and expected. Using the ex ante data for the 47 failed companies, the probability of failure increases over the five year period from 60% to 67% for the base model, 68% to 74% when CFFO is also considered, and 68% to 81% when the NFS is additionally incorporated in the final year. With the non-failed dataset, the

probability of failure, as expected, declines from year 5 to year 1 by 49% to 44% in the base model, 42% to 36% with CFFO and 42% to 26% with the NFS also added to year 1.

Overall this indicates a pleasing degree of model robustness and generates a level of cautious confidence in its application. It is contended, however, that due to the number of unknowns involved in the prediction of corporate financial performance/survival, no model should be considered flawless or even capable of delivering any more than a conservative assessment of predictive capability. Even though the results are encouraging with this model, which has purposefully attempted to combine a series of factors regarded as acceptable predictors by other researchers, there are apparent anomalies that ask for explanation. Some of these are considered below in the discussion of the outliers for both datasets. The Summary of Results spreadsheet (Appendix 7) shows the model results for each dataset company and, despite the overall model consistency and integrity derived from the averaging of individual probability results, the extent of the variability does sound a note of caution for unquestioned generic application. This need for caution and avoidance of unchallenged optimism for any such model is clearly an issue and should be reasonably considered in the context of the reservations expressed about modelling in Chapter 2.

Difficulties with the tri-dimensional approach

It is clear that the results from the raw model introduced in Chapter 3, comprising Z-score components, cash-flow ratios and indicators of debt gearing and overtrading, are

enhanced overall with the added inclusion of the CFFO raw data not incorporated in the original model. This supports many of the literary assertions advocating the importance of such cash-flow data, particularly in years closer to a failure event. What this model shows, however, is that such data is also capable of providing improved predictive capacity as much as five years out from the failure event. This operational cash-flow data indicates the ability of the organisation to generate sufficient cash flow to maintain operations, and is distinct from overall cash flow, which includes flows from investing and financing activities. This overall cash flow can cloud the picture and provide false confidence arising from an impression of overall financial cash strength, despite the fact that a large portion may have been derived from once-off investment input or sale of assets.

The model results are further enhanced in the final year with the inclusion of the NFS factor for Y1 (refer tables on previous pages). The model therefore changes slightly from the original:

Original

Accounting data (Z-score components X_1 - X_4) + cash-flow ratios and Argenti indicators for debt and overtrading + non-financial factors (F_i and F_e)

Modified

Accounting data (Z-score components X_1 - X_4) + cash-flow ratios and cash-flow raw data and Argenti indicators for debt and overtrading + Nonfinancial factors (F_i and F_e) for year 1 only

The NFS factor

As noted above, this factor did improve the predictive strength of the probability results when applied to the final year. However, the following difficulties and reservations need to be considered:

1. Length of time required to extract information

Unlike financial data, which is readily extractable from financial segments of annual reports and financial databases such as Aspect Huntley's FinAnalysis, the type of information required for determining the components of the NFS factor required comprehensive and time-consuming examination of the detailed written commentary in each company's annual report, as well as perusal of a wide range of related financial-media material. For example, to determine information about accounting policies and changes to accounting treatment, board/senior management composition and qualifications, business practices, strategies and risks etc. required many hours of scrutiny, a practice arguably of dubious value for even one year but simply not practical to replicate over a series of years. Given some of the reservations expressed below, together with the relatively low level of enhancement beyond the model with CFFO included, the value of incorporating this component is arguably rather questionable.

2. Restrictive relevance to final year preceding failure event

Much of the data is only relevant or retrievable for the period closely preceding the failure event. In particular, the research indicated that the powerful factors of negative financial commentary and critical audit comment were generally only

presented, and therefore not available, until periods immediately preceding a failure event (and sometimes after). This, together with the time-factor issues described above, somewhat depletes the value of this factor.

3. Subjectivity in the information-interpretation process

Apart from the fact that critical information about company circumstances may not become available until after the failure event, much of the available information is open to subjective interpretation. This inherent subjectivity directly translates to allocation of scores to the evidentiary existence of the individual components on the NFS scoresheet (Appendix 3), and therefore ultimately to the overall NFS factor incorporated in the application of the model. Although there is considerable literary research in support of the inclusion of non-financial information in a failure-prediction model (Argenti, Mearns etc.), the problem of subjective interpretation of the non-financial information appears to have been largely ignored in the literature up to now. However, in the research leading to this thesis it has become evident that the required degree of subjectivity applied can pose a problem of sufficient concern to place considerable doubt as to the integrity, and therefore the end value, of incorporating this type of factor into a model.

What a model should do

Fundamentally, a model should provide the designer with a facilitating response to a desired outcome. With the potential failure indicator model proposed, the desire is to

achieve a readily applicable, flexible and acceptably reliable indicator of pending difficulties leading to financial distress and possible failure.

As argued throughout this paper, the application of a predetermined cut-off point can be too restrictive and open to classification error. Statistical techniques such as MDA, used in previous models like Z-score, attempt a definitive prediction of failure based on the calculation of a score relative to a predetermined point of delineation. Research indicates that, despite claims to the contrary by some researchers, this is an unrealistic proposition. On the other hand, a probability range, derived through application of logistic regression, allows the users and interpreters of such information to make their own assessment of the level of risk attached to the resulting indicator of the probability of failure. Using only the original model financial components, the probability of failure for the failed dataset ranged from 60% in year 5 through to 67% in year 1. Adding the CFFO raw data (supplementary to the cash-flow ratios used in the original model), this probability range increases from 68% in year 5 through to 74% in year 1. With the further addition of the NFS factor in year 1, the probability increases even further to 81%. Individuals may make their own assessments of the risks attached to the probabilities, but it can be confidently stated that results such as those described above, particularly when taking the trend into account, would generally be a reasonable basis for concern. Similarly, with the non-failed dataset, average probabilities of failure decrease from 49% in year 5 through to 44% in year 1 using the original model only. With CFFO added, the range decreases to 42% in year 1 to 36% in year 5 (26% with NFS as well). Therefore, in both datasets, the general assessment of a company's financial health or decline is supported by the average probability results in each scenario, both from an annual single observation viewpoint and from a trend analysis. This trend analysis is at least as important as a single

period observation because it provides the crucial indicator of whether the likelihood of failure is increasing or diminishing.

The model clearly shows an overall increasing failure probability trend from year 5 to year 1 for the failed dataset, and a declining probability of failure for the non-failed dataset. This is as expected and helps to confirm the integrity of the model with its variable constructs. It also avoids the potential risks flowing from a definitive fail/non-fail prediction based on a predetermined cut-off point, these risks including not only classification error, but of even more concern, a self-perpetuating failure arising from such a misclassification if it is widely communicated. With this model, the probability results are presented without recommendation and are therefore open to the interpretation of individual users. From the datasets used, it would appear that most of the results are predictively self-evident, but circumstances will change with varying datasets. Even within the datasets used, there are results that do not fit with the broad model, and consequently distort the overall average results achieved. These “outliers” are discussed below.

The Outliers

As expected from earlier discussion, the individual circumstances peculiar to some companies will result in outlier observations that do not ideally fit with the broad model. Some of these are now examined and the model results recalculated to show the position that would exist if they had not been included in original datasets. Using the Y1+CFFO result as a focus, the five companies with the lowest failure probability result have been removed from the failed dataset, and the five companies with the

highest failure probability result have been removed from the Non-failed dataset. The companies affected are:

Failed

Henry Walker Eltin

Showed an increasing probability of failure rising to around 70% in year 2, but dropping away to approximately 60% in year 1. A contributing factor appears to be the issue of an additional 36 million shares in the final year, increasing the market value of equity from \$106m to \$173m. This positively affected the X_4 factor in the base model and the X_1 factor in the base+CFFO variant, both of which would improve the overall Z-score variables segment of the model and reduce the probability of failure in the final year. The improvement in these factors was enough to more than off-set, and therefore disguise, the decline in CFFO that also occurred during the final year. Other factors, particularly the gearing variables of TL/TA and LC/SC, were also positively affected but were not incorporated as significant variables in the overall model.

MIM Holdings

With this company, the predictive value of the CFFO raw data is shown to be non-compliant. The failure probability factor for the base model without CFFO drops from 75% in year 2 to 55% in year 1. Again, this is largely due to an increase in the X_4 factor arising from a combination of the issue of additional equity in the final year, together with a reduction in debt of about \$2.4bn, assisted by asset sales of \$2bn. Current liabilities were also reduced by \$800m. These movements had beneficial

impacts on CFFO/CL, TL/TA and LC/SC, but with regard to the significant variables in the model, the key beneficial movements were in the CFFO/TD and X_4 factor (MV equity/BV debt) for the base model, and the X_1 factor (WC/TA) in the model variant including CFFO. The aberration here, however, is in the raw CFFO figure, which increased by approximately 15% and reduced the failure probability to 3%, although this has been a consistent feature across most of the previous years as well. This case is an example, therefore, of where the strength of cash flows has contributed to a very low failure probability but has not been enough to prevent the company's failure.

Newmont Yandal

This is another example of where the addition of the CFFO factor has distorted the result rather than enhanced it. Using the CFFO component, the model showed an increasing trend to failure over the four-year period year 5 to year 2 of 54% to 72%. In year 1, however, it dropped back to 40%, compared with the year 1 base-model result of 66%, and 99% with the NFS included. Again the CFFO raw factor, which improved the overall model, has compromised the individual company result in this case. This is despite the fact that the year 1 base-model failure probability result has also declined in the final year, largely due to a decline in total assets arising from fixed asset write-downs of about \$240m (raising the X_3 factor of retained earnings/total assets despite a decline in retained earnings flowing on from the asset write-downs). A reduction in current liabilities of almost 50% improved the working-capital position and hence the X_1 factor component of the year 1 model with CFFO. Despite the apparent turnaround in final-year model results, closer analysis would clearly raise considerable concerns, with rapidly declining CFFO and retained

earnings declining even further from negative \$270m to negative \$569m. History shows that these concerns would be well justified.

Phoenix Technology

Again, the CFFO factor diminishes the failure probability from 79% to 56%, a contrary trend to the average model result. Closer inspection of the results, however, cements concerns about future viability. With negative CFFO for the past three years, together with negative EBIT and a growing negative balance in retained earnings, it becomes apparent that the company has been relying on funds raised from additional share issues to keep it afloat.

RGC

This is an example of a company that has failed despite broadly based positive financial indicators and a lower-end failure probability from the model. Strong cash flows, good profits and retained earnings and no apparent non-financial threat indicators would instil a reasonable degree of confidence in its ongoing viability; the model supports this with declining failure probability for the base model of 60% in year 5 to 58% in year 1 and, for the base plus CFFO variant model, 70% in year 5 to 37% in year 1. With the NFS factor, failure probability is even lower at 22%. The absence of warning signs and the low failure probability simply reinforces the difficulty of achieving consistency in interpretation and predictability in the area of company failure.

Non-failed

The non-failed companies removed from the dataset due to outlier results were Capral Aluminium, Kimberley Diamond, Midas Resources, Nylex and Steamships Trading. All of these exhibited strong failure probability from the model, typically in the range of 75 to 85%. As at May 2008, two (Capral and Kimberley) had delisted and relisted with slight name changes, but no apparent link to business/financial difficulties. However, unlike the failed dataset, where the end result is known, it is not yet known whether the model results, here regarded as outliers, may actually indicate possible future problems for one or more of the companies concerned. These can be monitored as part of the range of possible future research opportunities linked to the research in this thesis.

With the above outlier results removed for both the Failed and Non-failed datasets, the model results can be seen to be further enhanced.

Table 8: Failed Dataset With Outlier Results Removed

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	68	73	62	61	61
Base model + CFFO	78	76	73	73	70
Base model + CFFO + NFS	83				

Figure 10: Failed Dataset With Outlier Results Removed

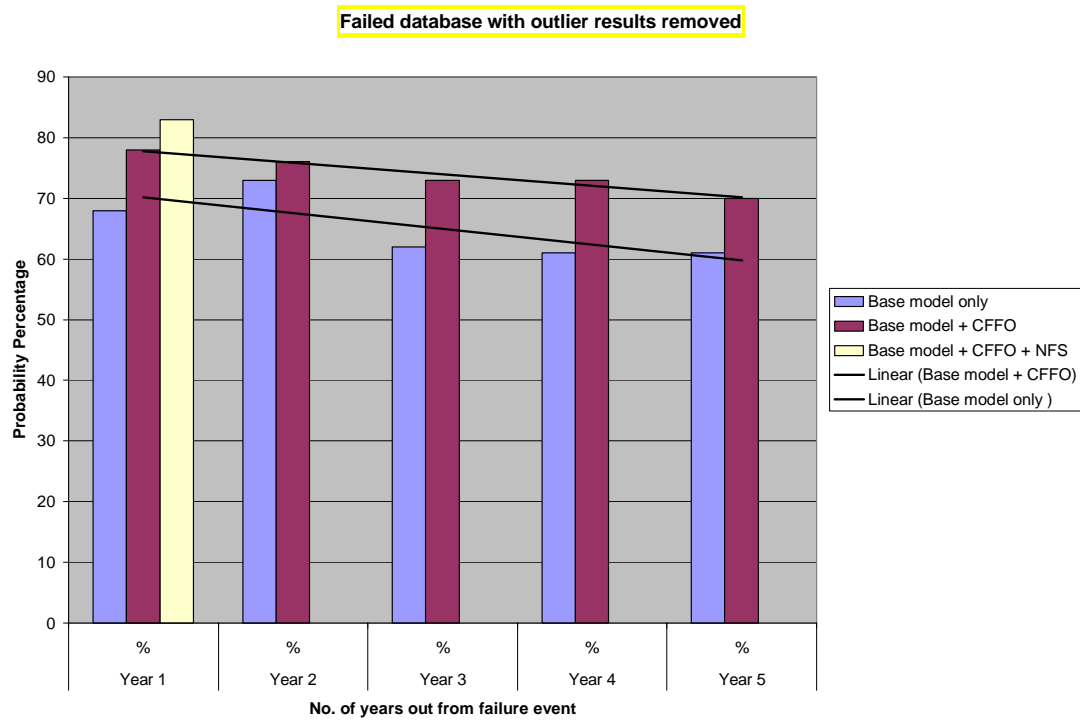


Figure 11: Failed Dataset With Outliers Removed

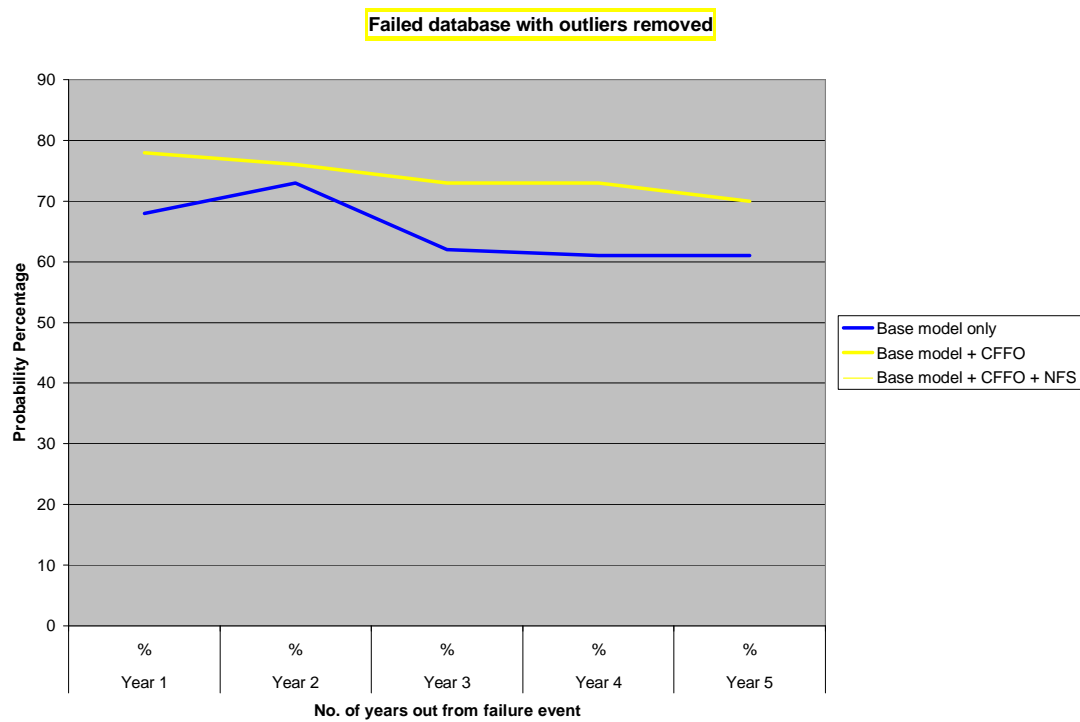


Table 9: Non-Failed Dataset With Outliers Removed

Probability of failure	Year 1	Year 2	Year 3	Year 4	Year 5
	%	%	%	%	%
Base model only	40	61	52	54	49
Base model + CFFO	29	30	33	33	38
Base model + CFFO + NFS	26				

Figure 12: Non-Failed Dataset With Outliers Removed

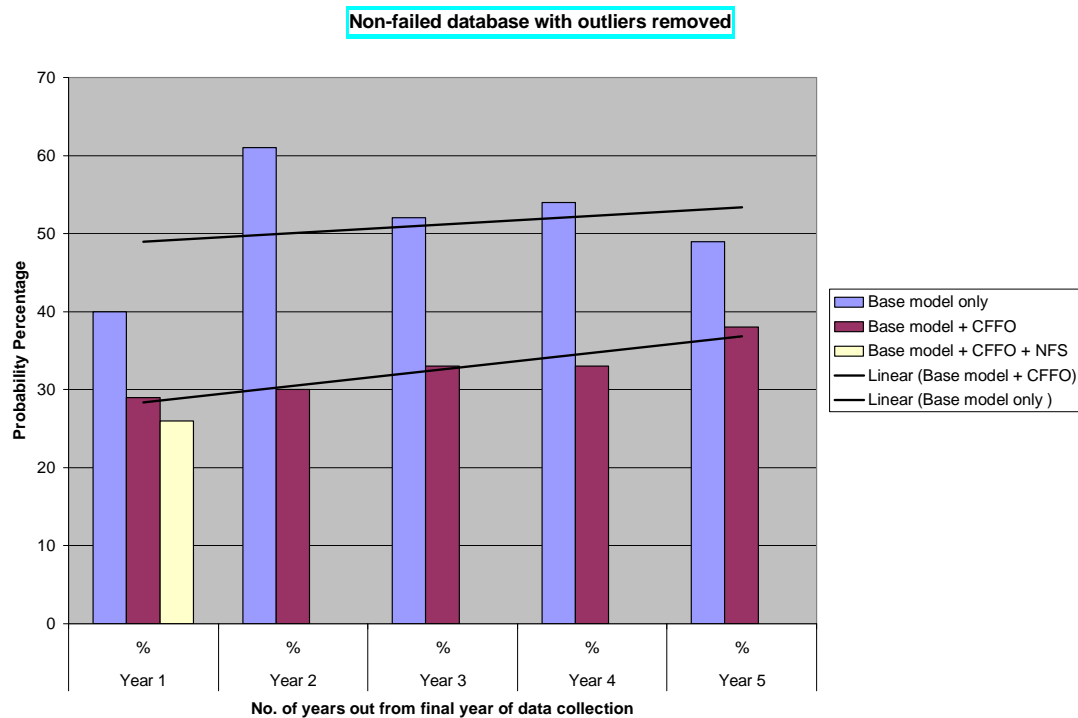
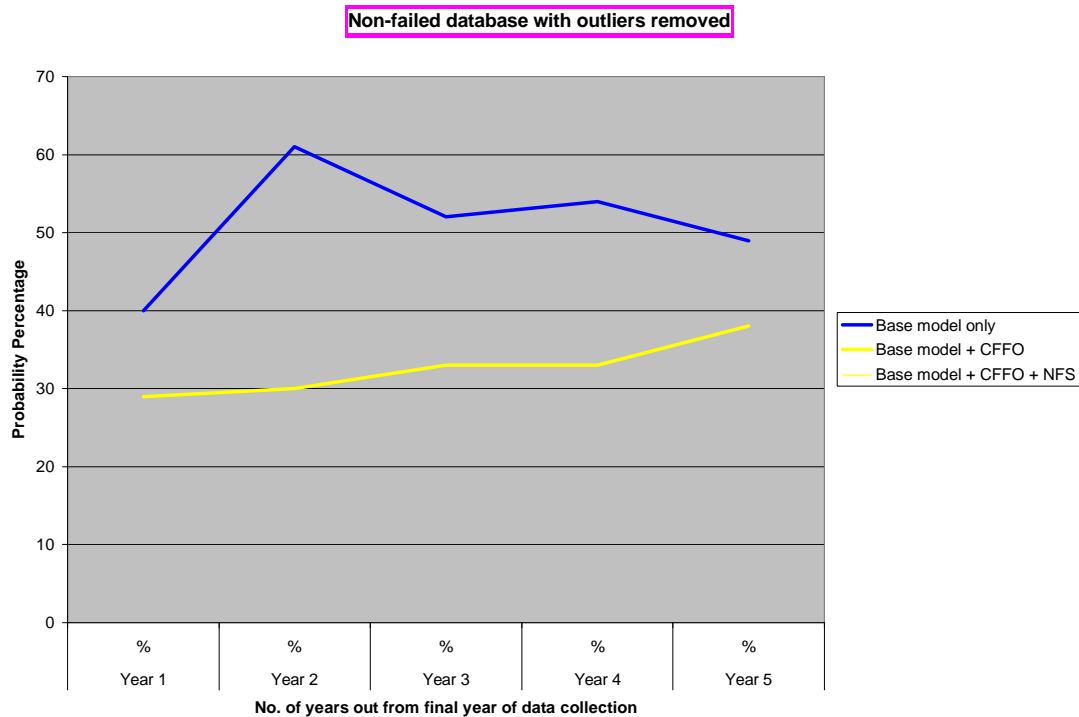


Figure 13: Non-Failed Dataset With Outliers Removed



This is, however, for illustrative purposes only, as the degree of uncertainty means that outlier results are not uncommon.⁶

5.5 Conclusion

The model has produced output results that engender confidence in its robustness and utility. In the valuation and analysis process, however, some of the claims from the previous literature, around which this model has been fundamentally constructed, have been found to be unsupported or flawed.

⁶ The statistical technique of winsorisation was not applied. Winsorisation involves the replacement of extreme values with trimmed minimum and maximum percentiles. In this thesis, the outliers were simply discarded, a process referred to as trimming. There was no particular purpose to this approach apart from a curiosity to see the impact on the model results when extreme elements of the sample were eliminated. The model results have primarily been reported based on the full sample used.

The non-financial component (NFS factor), strongly supported in previous research literature by Argenti (1976), Goodman et al. (1995), Adler and Hall (1996), Eisenbeis (1997), Zopounidis and Doumpos (1999) and others, was found to have rather dubious value-adding characteristics at best. Although this factor appeared to enhance the model's final-year predictive ability, this was only achieved through a worrying degree of subjective interpretation of the source information. As well, most of this information only became apparent and/or available in the period immediately preceding the actual failure event and, in some cases, after the event. This makes it very difficult to use the model effectively for what should be its primary purpose, forward risk projections of potential company financial distress or failure. Together with the time required to extract and analyse the required input data, the value of the NFS factor in the model structure becomes severely compromised.

Cash flow, particularly cash flow from operations, was also strongly supported as a superior indicator of organisational financial performance by previous researchers such as Beaver (1967), Earl and Marais (1982), Holmen (1988), Gilbert (1990), Mills and Yamamura (1998), Turetsky and McEwen (2001) and Sharma and Iselin (2003). The three cash-flow ratios selected on the basis of this support were all found to have degrees of significance and predictive strength to warrant the prior support. However, the outstanding performer, only sparingly mentioned in previous literature, was the raw cash flow from operations figure, as distinct from the ratios to which it contributed. This raw CFFO figure was shown in the model to add predictive capacity across all years.

The variables from the MDA-derived Z-score were widely supported by Altman (1968, 1983, 1984, 1993, 2000, 2002, 2003) with Baidya (1979), Brenner (1981), Eisenbeis (1981), Haldeman (1977), Izan (1982) and Narayanan (1997) and other authors such as Taffler (1982, 1984, 1995) with Tisshaw (1997), plus many others over the past 40 years. However, these variables were also found to be not as statistically significant as would have been expected from the level of this support. The exception was the X_1 factor (working capital/total assets), which was significant in all years apart from year 2. Also, the Argenti (1976) failure indicators for excessive debt and overtrading were generally found to be of insufficient significance to contribute to the model, the exception being the TL/TA (total assets/total liabilities) debt indicator in year 2.

Although the initial model structure commenced in each year with the same 12 variables (refer Appendix 2), the varying significance of variables from year to year resulted in the model being presented in a different structure for each year. The above results indicate that the model meets the objectives set down in Chapter 1 to provide a robust model that addresses the perceived deficiencies of previous models and is readily accessible and useable by researchers and analysts alike.

The following and final chapter summarises the findings and conclusions arising from the research in this thesis and suggests some areas where possible opportunities exist for its extension in the future.

Chapter 6

Conclusions and Future Directions

6.1 Introduction

The key findings can be broken into two categories: conclusions from the previous research and conclusions from the application of the model. This chapter summarises these conclusions and discusses some of the possible future research opportunities available on the topic of financial-distress prediction from a general perspective, as well as those arising from the specific research contributing to this thesis.

6.2 Conclusions from the previous research

Corporate failure is likely to be an ongoing issue. Even during the process of writing this thesis, there has been a series of high-profile collapses including ABC Learning Centres and continuing fallout from the US sub-prime crisis. Rumblings of imminent collapses in the airline industry worldwide have grown in momentum as fuel prices erode profit margins and the normally huge international airline travel market shrinks due to the fallout from the global financial and economic crisis.

Prediction of company failure has been the target of much research over the past 40 years, and the desire to develop tools to help predict failures continues and strengthens. Existing models can claim varying degrees of success, but also clearly display shortcomings, thereby presenting scope for new approaches to the problem. The approach adopted in this thesis attempts to address some of these shortcomings

and key areas of criticism such as over-reliance on accounting ratios, non-recognition of cash and the potential impact of non-financial factors. As well, it substitutes the popular but flawed MDA-based definitive fail/non-fail result with a probability assessment of the possible level of financial distress. This probability result and trend allows for more individual interpretation of model results.

In formulating this new approach, however, individual industry or company factors cannot be ignored in the application of models and the interpretation of their results. What appears to be abundantly clear from previous research is that there is no ideal “one size fits all” approach that allows for the application of a generic model across all industries, geographic regions or even all years. Previous research indicates significant difficulties in attempts to apply such a generic model with too many relevant factors from case to case.

There was also no evidence detected in prior research of using models to make predictions of failure, with subsequent follow-up to verify/dispute the predictions. Typically, research articles relate to the use of models for companies already recognised as failed, and the model is applied to the historic data of the company to determine whether the model would have predicted the event. As the process of model construction can be affected by the ex-ante data through changes to the weights applied to each variable, a more useful test would be to make projections of future financial performance by applying the model to current circumstances and projecting forward. These predictions could then be reviewed at a future point to assess for accuracy. Although the model from this thesis has been developed under an ex-ante regime, it is planned over time to test it, with variations, across a future time frame.

There will always be some shortcomings and problems with the use of such models, and this should be kept in mind in the context of what they are trying to achieve: to provide a means of assisting with the prediction of possible company financial distress. Whilst the usefulness of models can be accepted as one tool for helping to analyse corporate health and viability, it also needs to be recognised that they are only a tool. To some extent, therefore, this thesis has poured some cautionary cold water on the previously existing, almost unbridled, enthusiasm for such models and their largely unsubstantiated claims of success. This new model is a conservative approach with modest claims, and the random database has been fully examined even though elimination of some of the outlier results would have improved the claimed level of success.

6.3 Conclusions from the research relating to the model

Because the existing literature has developed models that, although used extensively over the years, generally appear to have limited practitioner value, this thesis has aimed to refine the modelling approach to address some of the key limiting factors identified in previous literature as contributing to restriction of reliability or practitioner access. Unlike the traditional MDA (Z-score) approaches, the objective in this model is not to define a fail/non-fail cut-off point, but rather to assign a probabilistic assessment of financial viability (or lack thereof).

The construction of the model included a group of key indicators that permeated through a large proportion of the articles generated from other researchers in the area of predictive modelling for company failure or financial distress. These factors have been discussed in previous chapters, but include variables from Altman's original Z-score, cash-flow ratios and operational cash flow, indicators of excessive gearing and overtrading, and key non-financial criteria. The model output was discussed in Chapter 5. The analysis of these results indicates that the thesis objectives of achieving a robust model that addresses key concerns raised by past research and is accessible to analysts and researchers alike, have been met.

The key concerns from past research have been largely addressed through inclusion of the range of factors mentioned in the previous paragraph. However, some of the claims of previous researchers that were embraced for this model have been found to be deficient. These were covered in the concluding discussion to Chapter 5 but are summarised again in the following conclusions arising from the application and testing of the model.

Firstly, the success of the model diminishes with older data. This is an expected result and indicates that the model improves predictive capacity with the most recent reported data. This is in line with other models from previous research and simply reflects the increasing predictive value of more recent information, whether it be purely financial or not. However, the pleasing results from this model show an overall robustness across the five-year time period used for data sourcing. The shallow upward trend line for Failed entities and downward trend for Non-failed entities indicates an improving predictive result leading up to the most recent period,

coupled with strong predictive capacity even five years out. This is quite different to most of the MDA models, which claimed to have higher levels of success in the final year or two, but typically dropped away sharply beyond that. The conclusion, therefore, is that this model has highly acceptable utility across at least a five-year timeframe.

Non-financial factors were generally found to be significant in the final year before failure, but difficult to apply prior to that. Contrary to claims arising from some of the previous research, however, the non-financial factor did not produce a predictive enhancement over and above the base model that justified its unchallenged inclusion in the model. With operational cash flow included, the base model produced consistently robust results from both a static and trend perspective. Any enhancement achieved by including a non-financial factor is somewhat clouded by the subjective interpretation of information contributing to that inclusion, and the time required for collation and interpretation of this information severely limits the utility of the model.

Not all Z-score factors were found to be significant. The significance of all the variables is discussed in Chapter 5, but the only Z-score variable found to be consistently significant across the five-year timeframe was the X_1 factor, working capital/total assets. This reflects the importance of the current-asset and current-liability relationship and the impact of liquidity for a company's ongoing viability. This was reinforced with consideration of cash-flow factors.

The importance of cash flow, particularly cash flow from operations, was widely discussed and supported in previous research literature. Its exclusion from many of

the previous models was a source of criticism and was regarded as a deficiency of these models. Recognising this strong support and the need to address this deficiency, a number of key cash-flow ratios discussed in the literature were included in the model. The findings generally supported the prior research, with one or more of the CFFO-related factors found to be generally significant across the timeframe. These were mainly ratios relating cash flow from operations to other financial variables such as total debt, total cash inflow or current liabilities. However, the most impact on overall predictive performance of the model came from the inclusion of the raw cash flow from operations. This factor, largely ignored in previous research literature in favour of cash-flow ratios, was found to be significant in all years. Except in a couple of outlier examples discussed in Chapter 5, the inclusion of the CFFO figure added to the probability of failure for those companies in the Failed dataset, and reduced the probability of failure for those in the Non-failed. This, therefore, enhanced the model robustness and provided a situation where the model was sufficiently successful without reliance on the problematic non-financial component.

Reflecting the changing degree of significance for each of the variables over the five-year timeframe, the model function changed from year to year. Although this then required the use of a different formula to arrive at a failure probability for each year, the formulae are not complex and the input data is readily accessible from publicly available company annual reports. Therefore the objective of delivering a model that can be readily accessed and easily used by analysts and researchers alike has been met, but with the added feature of superior longer-term predictive strength distinguishing it from prior models.

6.4 Summary and Future directions

This thesis has examined aspects of the problem of predicting corporate failure.

In Chapter 1 it was established that, with the well-documented history of trauma arising from business-failure events over the past 50 years, it is not surprising that a substantial amount of research effort has been devoted to the development of means to help predict such events. However, although some attempts have been made to develop models that incorporate a combination of financial and non-financial factors, there does not seem to be at this stage any comprehensive attempt to specifically address deficiencies of existing models. The key deficiencies were identified in Chapter 2 and contributed to the basis for constructing an improved approach to modelling the level of a company's risk exposure to a potential financial-distress event.

Working on the premise that there should be indicators that help to remove some of the reliance on guesswork in predicting corporate performance, this thesis aimed to build on earlier research and produce an approach that is more workable and easily understood, and with more widespread practical application than those currently available. This was a new approach, one that attempted to adjust for deficiencies of previous approaches and to use a group of components that, as a whole, did not rely so much on interpretative weighting or contestable data that they affect the robustness of the predictions. The aim was the construction, development and ultimate presentation of a tri-dimensional model, with specific application initially to the Australian business environment.

Possible limitations of the research were recognised in Chapters 2 and 3 and included concerns such as the impact of “creative” accounting on financial source data, problems with model structure and applicability across different time periods, industries and geographic zones, the use of ex ante data to the prediction of future results, the level of subjectivity inherent in the interpretation of non-financial information and the historic criticisms of modelling approaches in general. The acknowledgement of these limitations does not detract from the integrity of the final model and simply reflects the reality that any such model should be viewed as a tool to assist in the decision-making process rather than the holy grail for prediction of business performance.

In Chapter 3 the process of model development was discussed. Using document analysis and a commercial database, historic data was extracted for a database of failed and non-failed companies and applied to statistical software using logistic regression analysis. As previously concluded in Section 3 of this chapter, the resulting model development in Chapter 3 and the model outcomes in Chapter 5 serve to fulfil the initial stated objective: “to develop a practical and readily accessible approach to the problem of predicting corporate financial performance”

The final step is to consider the future research opportunities. Further research beyond this thesis will be aimed at expanding analysis on both an industry and geographic basis. It is expected that this post-DBA move into other industry sectors will demonstrate that the model can be broadly applicable, with some fine-tuning for sector differentials.

There is also huge scope for experimentation with different combinations of ratios.

The model used 12 variables selected on the basis of strength of argument and support in the previous literature produced over the past 40 years. Most of these variables were progressively eliminated based on level of significance so that typically only a small proportion of them actually progressed to the final model formulae for each year. However, previous literature also discussed the use of many other variables in isolation and in combination, and there exist extensive additional possibilities not yet researched. Therefore, it is expected that, as the research extends, it will be possible to determine the most powerful factors for broadly based application to the predictive process. Indeed, is there a “super-factor” that has a broadly applicable predictive capacity across the full range of business environments?

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Appendix 1

GICS Categories



DatAnalysis GICS Structure

Sector	Industry Group	Industry	Sub-Industry	GICS Code
Energy	Energy	Energy Equipment & Services	Oil & Gas Drilling	10101010
			Oil & Gas Equipment & Services	10101020
		Oil & Gas & Consumable Fuels	Integrated Oil & Gas	10102010
			Oil & Gas Exploration & Production	10102020
			Oil & Gas Refining & Marketing	10102030
			Oil & Gas Storage & Transportation	10102040
			Coal & Consumable Fuels	10102050
Materials	Materials	Chemicals	Commodity Chemicals	15101010
			Diversified Chemicals	15101020
			Fertilizers & Agricultural Chemicals	15101030
			Industrial Gases	15101040
			Specialty Chemicals	15101050
			Construction Materials	15102010
			Metal & Glass Containers	15103010
		Construction Materials Containers & Packaging	Paper Packaging	15103020
			Aluminium	15104010
			Diversified Metals & Mining	15104020
			Gold	15104030
			Precious Metals & Minerals	15104040
			Steel	15104050
		Metals & Mining	Forest Products	15105010
			Paper Products	15105020
		Paper & Forest Products		
Industrials	Capital Goods	Aerospace & Defense Building Products Construction & Engineering Electrical Equipment	Aerospace & Defense	20101010
			Building Products	20102010
			Construction & Engineering	20103010
			Electrical Components & Equipment	20104010
			Heavy Electrical Equipment	20104020
		Industrial Conglomerates Machinery	Industrial Conglomerates	20105010
			Construction & Farm Machinery & Heavy Truck	20106010
			Industrial Machinery	20106020
		Trading Companies & Distributors Commercial Services & Supplies	Trading Companies & Distributors	20107010
			Commercial Printing	20201010
	Commercial Services & Supplier	Commercial Services & Supplies	Diversified Commercial & Professional Services	20201030
			Human Resource & Employment Services	20201040
			Environmental & Facilities Services	20201050
			Office Services & Supplies	20201060
		Transportation	Air Freight & Logistics	20301010
			Airlines	20302010
			Marine	20303010
			Railroads	20304010
			Trucking	20304020
		Transportation Infrastructure	Airport Services	20305010
			Highways & Railroads	20305020
			Marine Ports & Services	20305030
Consumer Discretionary	Automobiles & Components	Auto Components	Autoparts & Equipment	25101010
			Tires & Rubber	25101020
		Automobiles	Automobile Manufacturers	25102010
	Consumer Durables & Apparel	Household Durables	Motorcycle Manufacturers	25102020
			Consumer Electronics	25201010
			Home Furnishings	25201020
			Homebuilding	25201030
			Household Appliances	25201040
		Leisure Equipment & Products	Housewares & Specialties	25201050
			Leisure Products	25202010
			Photographic Products	25202020
		Textiles, Apparel & Luxury Goods	Apparel, Accessories & Luxury Goods	25203010
			Footwear	25203020
	Consumer Services	Hotels, Restaurant & Leisure	Textiles	25203030
			Casinos & Gaming	25301010
			Hotels, Resorts & Cruise Lines	25301020
			Leisure Facilities	25301030
			Restaurants	25301040
		Diversified Consumer Services	Education Services	25302010
			Specialised Consumer Services	25302020
	Media	Media	Advertising	25401010
			Broadcasting & Cable TV	25401020
			Movies & Entertainment	25401030
			Publishing	25401040

Consumer Discretionary (continued)	Retailing	Distributors	Distributors	25501010
		Internet & Catalog Retail	Catalog Retail	25502010
			Internet Retail	25502020
		Multiline Retail	Department Stores	25503010
			General Merchandise Stores	25503020
		Specialty Retail	Apparel Retail	25504010
			Computer & Electronics Retail	25504020
			Home Improvement Retail	25504030
			Specialty Stores	25504040
			Automotive Retail	25504050
			Homefurnishing Retail	25504060
Consumer Staples	Food & Staples Retailing	Food & Staples Retailing	Drug Retail	30101010
			Food Distributors	30101020
			Food Retail	30101030
	Food, Beverage & Tobacco	Beverages	Hypermarkets & Super Centers	30101040
			Brewers	30201010
			Distillers & Vintners	30201020
			Soft Drinks	30201030
			Agricultural Products	30202010
			Packaged Foods & Meats	30202030
	Household & Personal Products	Tobacco	Tobacco	30203010
			Household Products	30301010
			Personal Products	30302010
Health Care	Health Care Equipment & Services	Health Care Equipment & Supplies	Health Care Equipment	35101010
			Health Care Supplies	35101020
		Health Care Providers & Services	Health Care Distributors	35102010
			Health Care Services	35102015
			Health Care Facilities	35102020
	Pharmaceuticals & Biotechnology	Biotechnology	Managed Health Care	35102030
			Biotechnology	35201010
			Pharmaceuticals	35202010
Financials	Banks	Commercial Banks	Diversified Banks	40101010
			Regional Banks	40101015
			Thriffs & Mortgage Finance	40102010
	Diversified Financials	Diversified Financial Services	Other Diversified Financial Services	40201020
			Multi-Sector Holdings	40201030
			Specialized Finance	40201040
			Consumer Finance	40202010
			Asset Management & Custody Banks	40203010
	Insurance	Insurance	Investment Banking & Brokerage	40203020
			Diversified Capital Markets	40203030
			Insurance Brokers	40301010
			Life & Health Insurance	40301020
			Multi-line Insurance	40301030
	Real Estate	Real Estate	Property & Casualty Insurance	40301040
			Reinsurance	40301050
			Real Estate Investment Trusts	40401010
			Real Estate Management & Development	40401020
Information Technology	Software & Services	Internet Software & Services	Internet Software & Services	45101010
			IT Consulting & Other Services	45102010
			Data Processing & Outsourced Services	45102020
		Software	Application Software	45103010
			Systems Software	45103020
			Home Entertainment Software	45103030
		Communications Equipment	Communications Equipment	45201020
			Computer Hardware	45202010
			Computer Storage & Peripherals	45202020
		Electronic Equipment & Instrument	Electronic Equipment Manufacturers	45203010
			Electronic Manufacturing Services	45203020
			Technology Distributors	45203030
Telecommunication Services	Telecommunication Services	Diversified Telecommunication Services	Office Electronics	45204010
			Semiconductor Equipment	45301010
			Semiconductors	45301020
Utilities	Utilities	Electric Utilities	Alternative Carriers	50101010
			Integrated Telecommunication Services	50101020
			Wireless Telecommunication Services	50102010
Utilities	Utilities	Gas Utilities	Electric Utilities	55101010
			Gas Utilities	55102010
			Multi-Utilities	55103010
			Water Utilities	55104010
			Independent Power Producers & Energy Traders	55105010

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Standard & Poor's

Appendix 2

Model Structure

Appendix 2 – The Model

Potential Failure Indicator =

F1	+	F2	+	F3
<p>Accounting ratios utilised by Altman's Z-score model</p> <p>X_1 – working capital/total assets (WC/TA)</p> <p>X_2 – retained earnings/total assets (RE/TA)</p> <p>X_3 – earnings before interest and tax/total assets (EBIT/TA)</p> <p>X_4 – market value of equity/book value of debt (MVE/BVD)</p>		<p>Cash-flow measurements and Argenti distress indicators</p> <p><i>Cash-flow indicators</i></p> <p>cash flows from operations/total debt (CFFO/TD)</p> <p>cash flows from operations/total cash inflows (CFFO/TCI)</p> <p>cash flows from operations/current liabilities (CFFO/CL)</p> <p>cash flows from operations (CFFO)</p> <p>Plus</p> <p><i>Argenti Failure Indicators</i></p> <p>High gearing – total liabilities/total assets (TL/TA) and loan capital/shareholders capital (LC/ SC)</p> <p>Overtrading – fixed assets plus inventory/net cash [(FA+I)/NC]</p>		<p>Internal (Fi) A selection of:</p> <ul style="list-style-type: none"> - policies on accounting treatments - possible indicators of attempts at “creative accounting” - contingent liabilities such as outstanding legal cases or potential tax liabilities - investment strategies - indicators of CEO role - composition of board - financing and dividend policies - market factors - other areas of possible risk exposure – o/seas trade reliance linked to o/seas market conditions - auditors comments, in particular the issue of a qualified report <p>plus</p> <p>External (Fe) A selection of:</p> <ul style="list-style-type: none"> - analysts' comments - “rumours” of possible problems - unusual movements in market price

Appendix 3

Scoresheet for F3 component - NFS

Scoresheet for F3 Components

Company:

Scored in a range of 0 to 5 by evidence of the following factors:

(0 = no evidence, 5 = very strong evidence)

Fi

Absence of effective policies on accounting treatments	
Existence of indicators of attempts at “creative accounting”	
Existence of contingent liabilities potentially affecting future financial viability	
Existence of risky investment strategies	
Autocratic CEO	
CEO/chairman combined role	
Absence of appropriate mix of business/finance skills on the board	
Risky financing strategy, e.g. high levels of debt	
Absence of a stable dividend policy and/or declining dividend payments	
Unfavourable market factors	
Existence of other possible areas of risk exposure	
Adverse auditors comments/qualified report	
<i>Fe</i>	
Adverse comments from analysts and/or adverse press coverage of company performance or potential problem factors	
Unusual movements in market price	

Appendix 4

Failure Model Datasheet

4A – Failed dataset Z-score components

4B – Failed dataset cash-flow and distress-factor components

4C – Non-failed dataset Z-score components

4D – Non-failed dataset cash-flow and distress-factor components

4A – Failed dataset Z-score components

Insert Sheet 2 from Excel Spreadsheet titled Failure Model Datasheet

4B – Failed dataset cash-flow and distress-factor components

Insert Sheet 3 from Excel Spreadsheet titled Failure Model Datasheet

4C – Non-failed dataset Z-score components

Insert Sheet 7 from Excel Spreadsheet titled Failure Model Datasheet

4D – Non-failed dataset cash-flow and distress-factor components

Insert Sheet 8 from Excel Spreadsheet titled Failure Model Datasheet

Appendix 5

Combined All-Years Datasheet

5A – Year 1

5B – Year 2

5C – Year 3

5D – Year 4

5E – Year 5

5A – Year 1

Insert Sheet 1 from Excel Spreadsheet titled Modified Data Worksheet

5B – Year 2

Insert Sheet 2 from Excel Spreadsheet titled Modified Data Worksheet

5C – Year 3

Insert Sheet 3 from Excel Spreadsheet titled Modified Data Worksheet

5D – Year 4

Insert Sheet 4 from Excel Spreadsheet titled Modified Data Worksheet

5E – Year 5

Insert Sheet 5 from Excel Spreadsheet titled Modified Data Worksheet

Appendix 6

Final Model Structure

**Sample using data for one company
(Aerosonde) from year 2 base model
with CFFO raw data factor included**

Appendix 6

				Comb sheet2 -NF+CFFO		
<i>Using all variables</i>				<i>Example</i>		
Model Sig				0		
minus 2						
log likelihood				68.395		
Cox & Snell R square				0.412		
Nagelkerke R square				0.553		
Accuracy>						
Non-fail predict %				74.3		
Fail predict %				89.4		
Overall %				82.9		
Variable Sig>						
X1				0.263		
X2				0.704		
X3				0.963		
X4				0.412		
CFFOTD				0.944		
CFFOTCI				0.269		
CFFOCL				0.822		
TLTA				0.224		
LCSC				0.277		
FAINC				0.321		
NF						
CFFO				0.006		
Constant				0.704		
Model(B factors)>						
Constant				0.28	1	0.28
X1				-1.904	0.2799	-0.53293
X2				-0.127	-1.06323	0.13503
X3				0.087	-0.20464	-0.0178
X4				0.007	96.86106	0.678027
CFFOTD				0.016	-26.7921	-0.42867
CFFOTCI				-0.959	-0.5018	0.481223
CFFOCL				-0.047	-26.7921	1.259227
TLTA				1.887	0.007855	0.014823
LCSC				0.433	0	0
FAINC				-0.001	2.533773	-0.00253
NF						0
CFFO				0	-1043872	0
						1.866391
Result>						
Exp				0.154681		
Prob				0.86604		

Using only those variables with significance .05 or <

	Model Sig			0	
	minus 2				
	log	likelihood		78.115	
	Cox &				
	Snell	R square		0.338	
	Nagelkerke	R square		0.454	
Accuracy>					
	Non-fail	predict	%	74.3	54.3
	Fail	predict	%	89.4	95.7
	Overall		%	82.9	78
Variable Sig>					
	X1			0.263	
	X2			0.704	
	X3			0.963	
	X4			0.412	
	CFFOTD			0.944	
	CFFOTCI			0.269	
	CFFOCL			0.822	
	TLTA			0.224	0.028
	LCSC			0.277	
	FAINC			0.321	
	NF				
	CFFO			0.006	0.002
	Constant			0.704	0.784
Model(B factors)>					
	Constant			0.13	1 0.13
	TLTA			2.296	0.007855 0.018036
	CFFO			-8.79E-09	-1043872 0.009175
					0.157211
Result>					
	Exp				0.854524
	Prob				0.539222

Appendix 7

Final Summary of Probability Results

Insert Excel spreadsheet titled Final Summary of Probability Results (2 pages)

Appendix 8

Failure Classifications

Appendix 8

Classifications of corporate position used for companies on the ASX

Source – Delisted website www.delisted.com.au

Delisted

Most companies are delisted either because they are acquired by another company, they merge with another company or they have solvency problems.

According to the Australian Stock Exchange Listing Rules a company may be removed from the official list:

1. If it asks to be removed.
2. If in the opinion of ASX it breaks a listing rule or has no quoted securities, or delisting is appropriate for some other reason.
3. If all the quoted securities of an entity have been previously suspended.
4. If it fails to pay listing fees (Delisted).

Administration

Usually a company goes into administration when directors are of the view that the company is insolvent, or is likely to become insolvent. An administrator, who must be a registered liquidator, is appointed.

As a rule, the board of the company makes the appointment of an administrator, although it can also be made by a provisional liquidator, a liquidator or a secured creditor with a charge over "all or nearly all" of the company's assets.

When an administrator is appointed, the powers of the directors automatically cease. An administrator takes complete control of the company's business, property and affairs, and can exercise any power that the company or any of its officers would normally exercise.

The law provides a certain period of time to allow the administrator to investigate the company's affairs and to propose an arrangement to creditors. The objective of the administration process is to run the business so as to maximise the chances of the

company continuing in existence, and if that is not possible, to at least provide a better return for the company's creditors than would result from an immediate winding up of the company.

The administrator must form an opinion and make a recommendation to creditors as to whether the company should execute a Deed of Company Arrangement (DOCA) or be wound up, or the administration end. It is the creditors who vote on the resolutions and determine the immediate option and the future of the company. The resolution of the majority binds all creditors.

If the creditors agree to proposals for a DOCA, the Deed is executed and binds the company and its officers. Control normally reverts at that time to the directors, although it is common for changes to take place in the composition of the board. Often the DOCA also limits the powers of the directors and requires that certain activities require the prior approval of the administrator. The court does not need to approve but has safety-net powers.

A DOCA generally operates for a sufficient length of time (specified in the Deed) to enable the company to resolve its financial difficulties and repay creditors either in full or as otherwise agreed. When a DOCA is fully effectuated, the company has usually recovered sufficiently for control to revert to the directors and for the board to then seek the re-quotations of the company's shares.

If the company fails to fulfill the terms of the Deed a further meeting is convened to either vary or terminate the Deed. If the creditors resolve to terminate the Deed and the company is to be wound up, the administrator usually becomes the liquidator of the company (Delisted).

Receivership

Mostly a company is in receivership when a receiver is appointed by a secured creditor because the company has defaulted on a loan repayment. A secured creditor is someone to whom the company has given a "charge", such as a mortgage, over all or part of its assets in return for value, usually loan funds.

The court does not need to approve of the appointment of a receiver. The procedure is simple and the appointment is usually done quickly. Receivers, usually known as “receivers and managers”, can carry on the business, close it down or sell it off. Their principal task is to realise sufficient funds to repay the secured creditor; they are not there to deal with claims from creditors.

Receivers do not owe any general duty of care to the shareholders. However, the receiver must report to ASIC on any matter that may be irregular and that could cause ASIC to look into the conduct of anyone involved with the company's management or control.

Companies can be in both receivership and either administration or liquidation at the same time. If that occurs, receivers generally run the company because they have control over the secured assets, which are usually all the assets of the company.

Where receivers alone are involved, they have power over the assets in respect of which they have been appointed. The directors remain liable to perform their statutory liabilities, such as the filing of annual returns, and will retain power over any assets not the subject of the receiver's appointment.

Voluntary administrations are often used by banks today rather than appointing a receiver because they provide an opportunity to enter into a Deed of Company Arrangement, they freeze creditor action and they avoid the negative perceptions associated with the somewhat private appointment of a receiver (Delisted).

Liquidation

A company is in liquidation when a registered liquidator is appointed to conduct its winding-up and the liquidation of its assets. A liquidator is generally appointed on the grounds that the company is insolvent and there is no better way for creditors to maximise their return than from liquidating the assets.

A liquidator can be appointed, or a company can voluntarily place itself in liquidation or be voted into liquidation by its creditors. This last case it generally occurs because a viable arrangement is not possible during the course of a voluntary administration.

One of the major tasks of a liquidator is to admit claims by creditors and pay them according to priorities set out in the law.

If a company is placed in liquidation, the duty of the liquidator is to close the company down by winding down its business operations, selling the assets, distributing them to creditors and dissolving the company.

In liquidation, no person can perform or exercise any function or power as an officer of the company other than with the liquidator's written approval, although this does not technically remove the directors from office. However, they are stripped of all their powers.

A company can also be in provisional liquidation, a sort of half-way-house status, while enquires are made about the financial situation of the company pending liquidation, some other form of external administration, or returning the company to the control of the directors (Delisted).

Deregistration

The deregistration (as distinct from the delisting) of a company is the final act. The company is removed from the official records as a registered company. It no longer exists. Shares have no value.

Deregistration is recognised as a Capital Gains Tax Event: when it happens, shareholders can crystallise a capital loss for tax purposes (providing of course the shares were acquired on or after 20 September 1985, which is when capital gains tax was first introduced). The claim for a capital loss does not need to be substantiated with documentation; shareholders just need to know the company is deregistered. However, an administrator's or liquidator's declaration (that there will be no distribution to shareholders) is often made before deregistration (Delisted).

Appendix 9

Overview of classic statistical business failure prediction models

Overview of classic statistical business failure prediction models

Univariate analysis

Beaver (1967a)

Risk-index models

Tamari (1966)

Moses and Liao (1987)

MDA models

Altman (1968)

Deakin (1972)

Edmister (1972)

Blum (1974)

Altman et al. (1977)

Deakin (1977)

Taffler and Tisshaw (1977)

van Frederikslust (1978)

Bilderbeek (1979)

Dambolena and Khoury (1980)

Taffler (1982), model from 1974

Ooghe and Verbaere (1985)

Taffler (1983)

Micha (1984)

Betts and Belhoul (1987)

Gombola et al. (1987)

Gloubos and Grammatikos (1988)

Declerc et al. (1991)

Laitinen (1992)

Lussier and Corman (1994)

Altman et al. (1995)

Conditional probability models

Ohlson (1980)

Swanson and Tybout (1988)

Zavgren (1983)

Zmijewski (1984)

Gentry et al. (1985a)

Zavgren (1985)

Keasey and Watson (1987)

Peel and Peel (1987)

Aziz et al. (1988)

Gloubos and Grammatikos (1988)

Keasey and McGuinness (1990)

Platt and Platt (1990)

Ooghe et al. (1993)

Sheppard (1994)

Lussier (1995)

Mossman et al. (1998)

Charitou and Trigeorgis (2000)

Becchetti and Sierra (2002)

Charitou et al. (2004)

Key Abbreviations

ASX	Australian Stock Exchange
BVD	Book value of debt
CA	Current assets
CFFO	Cash flow from operations
CL	Current liabilities
EBIT	Earnings before interest and tax
FA+I	Fixed assets plus inventory
GICS	Global Industry Classification Standard
LC	Loan capital
MDA	Multiple discriminant analysis
MVE	Market value of equity
NC	Net cash
NFS	Non-financial score
RE	Retained earnings
SC	Share capital
TA	Total assets
TCI	Total cash inflow
TD	Total debt
WC	Working capital

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Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Aerosonde	T-0 2001	0.090303	-5.977065	-0.601286	2.250079	-20.5709	151485	-10,026,586.00	-1,008,664	1,677,510.00	3,396,510	1,509,507	1,660,992	1,509,507	0.09	37,739,005
	T-1	0.2799	-1.063229	-0.204635	96.86106	98.69897	1388294	-5273583	-1014985	4959967	3,773,901	38,962	1427256	38962	0.1	37,739,005
	T-2	0.100636	-0.822274	-0.195616	92.01913	93.2851	462713	-3780729	-899423	4597895	3,620,401	39344	502,057	39,344	0.14	25860005
	T-3	0.09047	-0.236464	-0.121442	63.87392	66.07414	614067	-1605009	-824292	6787546	5,424,301	84922	698989	84922	0.27	20090005
	T-4	0.108116	-0.121111	-0.111607	53.31916	55.54953	696944	-780717	-719451	6446272	14,195,000	266227	963,171	266,227	0.85	16700000
Alamain	T-0 2003	0.194061	-0.793876	-0.025689	0	-1.487626	2776632	-11,358,801.00	-367,560.00	14,308,026.00	0.00	9,462,410.00	8,520,378.00	5,743,746.00	0.00	69,400,000.00
	T-1	0.160716	-0.752929	-0.020774	0.08137	-1.454412	2328407	-10,908,193.00	-300,968.00	14,487,681.00	694,000.00	8,528,982.00	8,446,778.00	6,118,371.00	0.01	69,400,000.00
	T-2	0.043152	-0.485127	-0.0203	0.061942	-1.369814	908159	-10,209,739.00	-427,224.00	21,045,480.00	694,000.00	11,204,065.00	10,274,187.00	9,366,028.00	0.01	69,400,000.00
	T-3	-0.060944	-0.533042	0.025977	0.184868	-1.768835	-1117663	-9,775,552.00	476,396.00	18,339,161.00	2,082,000.00	11,262,094.00	8,451,686.00	9,569,349.00	0.03	69,400,000.00
	T-4	0.135925	-0.545562	0.043983	0.246956	-0.331996	2482319	-9,963,262.00	803,227.00	18,262,371.00	2,776,000.00	11,240,872.00	8,357,554.00	5,875,235.00	0.04	69,400,000.00
	T-5	0.005363	-0.515298	0.020682	0.784178	-0.682319	103740	-9,967,990.00	400,083.00	19,344,116.00	9,716,000.00	12,390,041.00	7,794,109.00	7,690,369.00	0.14	69,400,000.00
	T-6	0.057268	-0.755957	0.009354	0.895046	-1.08608	756075	-9,980,428.00	123,499.00	13,202,383.00	6,940,000.00	7,753,788.00	3,184,592.00	2,428,517.00	0.10	69,400,000.00
	T-7	0.072817	-1.129559	-0.002192	0.948081	-2.223926	802272	-12,445,000.00	-24,152.00	11,017,573.00	5,552,000.00	5,856,039.00	1,903,473.00	1,101,201.00	0.08	69,400,000.00
	T-8	0.851182	-16.35188	-0.860918	29.53398	-22.49805	612000	-11,757,000.00	-619,000.00	719,000.00	3,042,000.00	103,000.00	715,000.00	103,000.00	0.09	33,800,000.00
	T-9	0.669676	-8.118886	-0.465011	25.30769	1.373709	890000	-10,790,000.00	-618,000.00	1,329,000.00	2,632,000.00	104,000.00	994,000.00	104,000.00	0.08	32,900,000.00
Australian Goldfields	T-0 1997	-0.036638	-0.042331	0.02935	0.02345	-0.156492	-4273000	-4,937,000.00	3,423,000.00	116,628,000.00	1,600,000.00	68,231,000.00	32,459,000.00	36,732,000.00	0.02	
	T-1	-0.004459	-0.260198	0.00242	0.129933	-0.724807	-129000	-7,527,000.00	70,000.00	28,928,000.00	1,600,000.00	12,314,000.00	12,185,000.00	12,314,000.00	0.02	
	T-2	-2.338346	-214.9699	-1.947368	5.238095	-723.7278	-311000	-28,591,000.00	-259,000.00	133,000.00	1,650,000.00	315,000.00	4,000.00	315,000.00	0.02	
	T-3	-6.197674	-329.3953	-3.255814	3.164794	-1133.042	-533000	-28,328,000.00	-280,000.00	86,000.00	1,690,000.00	534,000.00	1,000.00	534,000.00	0.02	
	T-4	-1.19678	-49.38998	0.110912	20.52832	-146.5622	-669000	-27,609,000.00	62,000.00	559,000.00	43,130,000.00	2,101,000.00	346,000.00	1,015,000.00	0.45	
	T-5	0.484788	-10.26101	-0.005204	64.24345	37.14997	1211000	-25,632,000.00	-13,000.00	2,498,000.00	132,470,000.00	2,062,000.00	2,210,000.00	999,000.00	1.01	
Australian Kaolin	T-0 1998	0.122684	-0.090238	-0.024553	2.220828	2.677504	9983442	-7,343,174.00	-1,997,984.00	81,375,586.00	38,800,664.40	17,471,258.00	15,500,136.00	5,516,694.00	0.15	258,671,096.00
	T-1	0.705444	-0.104935	-0.038201	65.66024	72.97217	39010284	-5,802,790.00	-2,112,490.00	55,298,892.00	76,689,917.50	1,167,981.00	40,153,245.00	1,142,961.00	0.35	219,114,050.00
	T-2	0.031151	-0.347088	-0.065337	17.93006	17.46033	441039	-4,914,149.00	-925,061.00	14,158,226.00	20,160,000.00	1,124,369.00	504,750.00	63,711.00	0.28	72,000,000.00
	T-3	-0.020337	-0.290414	-0.102499	7.857476	6.481395	-293000	-4,184,000.00	-1,476,697.00	14,407,000.00	16,870,000.00	2,147,000.00	658,000.00	951,000.00	0.70	24,100,000.00
	T-4	0.39379	-0.211514	-0.005847	12.54549	15.02721	6088000	-3,270,000.00	-90,393.00	15,460,000.00	28,679,000.00	2,286,000.00	6,885,000.00	797,000.00	1.19	24,100,000.00
	T-5	0.162338	-0.106642	-0.034691	1.138173	1.679245	2119000	-1,392,000.00	-452,817.00	13,053,000.00	8,435,000.00	7,411,000.00	8,979,000.00	6,860,000.00	0.35	24,100,000.00
	T-6	-0.136849	-0.226524	-0.031421	1.564935	-0.20417	-615000	-1,018,000.00	-141,208.00	4,494,000.00	964,000.00	616,000.00	1,000.00	616,000.00	0.04	24,100,000.00
Australian Plantation Tin	T-0 2004	0.107372	-1.755362	0.012422	0.283426	-4.63705	8566000	-140,041,000.00	991,000.00	79,779,000.00	17,460,148.64	61,604,000.00	58,871,000.00	50,305,000.00	0.22	79,364,312.00
	T-1	0.262455	-4.372503	-0.01895	1.038188	-11.5699	8476000	-141,210,000.00	-612,000.00	32,295,000.00	15,872,862.40	15,289,000.00	22,222,000.00	13,746,000.00	0.20	79,364,312.00
	T-2	0.2589	-5.108432	0.079633	0.974592	-13.39665	7120000	-140,487,000.00	2,190,000.00	27,501,000.00	9,523,717.44	9,772,000.00	15,821,000.00	8,701,000.00	0.12	79,364,312.00
	T-3	-0.454331	-3.764359	-0.633726	0.914419	-18.55072	-20638000	-170,996,000.00	-28,787,000.00	45,425,000.00	55,555,534.00	60,755,000.00	40,117,000.00	60,755,000.00	0.40	138,888,835.00
	T-4	0.018892	0.111918	0.157798	0.83339	2.424247	5916000	35,046,000.00	49,413,000.00	313,141,000.00	103,340,323.32	124,000,000.00	89,925,000.00	84,009,000.00	0.78	132,487,594.00
	T-5	-0.21495	0.056298	0.034771	1.857509	0.957505	-65973000	17,279,000.00	10,672,000.00	306,923,000.00	273,912,000.00	147,462,000.00	51,227,000.00	117,200,000.00	2.02	135,600,000.00
Australian Resources	T-0 1998	0.018766	0.198471	0.050477	0	1.109326	3865000	40,876,000.00	10,396,000.00	205,955,000.00	0.00	82,834,000.00	35,509,000.00	31,644,000.00		224,518,096.00
	T-1	0.034176	0.187666	0.065659	0	1.277212	6791000	37,291,000.00	13,047,000.00	198,709,000.00	0.00	79,173,000.00	37,128,000.00	30,337,000.00		224,518,096.00
	T-2	0.067683	0.282097	0.116264	0	2.144929	14446000	60,210,000.00	24,815,000.00	213,437,000.00	0.00	70,982,000.00	35,122,000.00	20,676,000.00		224,518,096.00
	T-3	0.101239	0.27282	0.131829	0	2.439416	19083000	51,425,000.00	24,849,000.00	188,494,000.00	0.00	54,824,000.00	40,633,000.00	21,550,000.00		224,518,096.00

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	Company financial data for factor calcs										CA	CL	Share price	No. shares
		X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt			
Australian Topmaking S	T-0 2000	0.01261	0.033522	-0.001295	4.153857	4.544852	594000	1,579,000.00	-61,000.00	47,104,000.00	28,237,921.56	6,798,000.00	3,353,000.00	2,759,000.00	0.18 156,877,342.00
	T-1	0.020957	0.044798	-0.00999	3.542245	3.935738	988000	2,112,000.00	-471,000.00	47,145,000.00	23,538,216.00	6,645,000.00	2,952,000.00	1,964,000.00	0.15 156,921,440.00
	T-2	0.185468	0.052558	0.071907	5.503775	7.650183	8517287	2,413,628.00	3,302,203.00	45,923,318.00	28,155,571.20	5,115,684.00	13,600,637.00	5,083,350.00	0.18 156,419,840.00
	T-3	0.042707	0.060369	0.057652	4.413209	5.498259	1569182	2,218,131.00	2,118,302.00	36,742,605.00	24,583,028.80	5,570,330.00	3,836,722.00	2,267,540.00	0.22 111,741,040.00
	T-4	0.002523	-0.025918	-0.034728	1.482494	1.2553	98443	-1,011,362.00	-1,355,139.00	39,021,215.00	15,643,745.60	10,552,319.00	5,229,384.00	5,130,941.00	0.14 111,741,040.00
	T-5	-0.055821	-0.084769	-0.011007	0.695345	0.013611	-3550000	-5,391,000.00	-700,000.00	63,596,000.00	27,935,500.00	40,175,000.00	27,838,000.00	31,388,000.00	0.50 55,871,000.00
	T-6	0.057878	-0.055972	-0.039822	3.439203	3.540772	2247000	-2,173,000.00	-1,546,000.00	38,823,000.00	41,903,250.00	12,184,000.00	5,798,000.00	3,551,000.00	0.75 55,871,000.00
	T-7	0.406457	-0.014733	-0.005309	0.149729	2.739868	16001000	-580,000.00	-209,000.00	39,367,000.00	1,673,520.00	11,177,000.00	27,178,000.00	11,177,000.00	0.03 55,784,000.00
	T-8	-2.594142	-17.10879	-0.619247	0.194231	-76.74961	-620000	-4,089,000.00	-148,000.00	239,000.00	147,810.00	761,000.00	141,000.00	761,000.00	0.03 4,927,000.00
Barrack Mines	T-0 1991	-6.351878	-9.416824	-0.001666	0.020576	-72.35676	-1.61E+08	-238,660,000.00	-42,216.00	25,344,000.00	3,719,672.10	180,780,000.00	19,798,000.00	180,780,000.00	0.02 185,983,605.00
	T-1	-0.248494	-0.309809	-8.11E-05	0.194094	-2.436847	-87008000	-108,477,000.00	-28,410.00	350,141,000.00	70,673,769.90	364,121,000.00	41,268,000.00	128,276,000.00	0.38 185,983,605.00
Carlovers Carwash	T-0 2002	-0.093705	-0.616333	0.023247	0.069222	-2.395045	-3930000	-25,849,000.00	975,000.00	41,940,000.00	2,040,814.92	29,482,000.00	13,838,000.00	17,768,000.00	0.03 68,027,164.00
	T-1	-0.108035	-0.386014	0.008434	0.459783	-1.427673	-5265000	-18,812,000.00	411,000.00	48,734,000.00	13,605,432.80	29,591,000.00	14,880,000.00	20,145,000.00	0.20 68,027,164.00
	T-2	-0.194916	-0.601341	0.058509	1.168097	-1.619341	-4041000	-12,467,000.00	1,213,000.00	20,732,000.00	10,347,004.80	8,858,000.00	2,003,000.00	6,044,000.00	0.12 86,225,040.00
	T-3	-0.107543	-0.539081	-0.014669	0.513594	-2.022192	-2522000	-12,642,000.00	-344,000.00	23,451,000.00	6,035,752.80	11,752,000.00	3,052,000.00	5,574,000.00	0.07 86,225,040.00
	T-4	-0.241999	-0.417547	-0.128631	0.166137	-3.638678	-6231000	-10,751,000.00	-3,312,000.00	25,748,000.00	2,586,751.20	15,570,000.00	2,797,000.00	9,028,000.00	0.06 43,112,520.00
	T-5	-0.023044	0.031754	0.037735	1.062782	1.321854	-836000	1,152,000.00	1,369,000.00	36,279,000.00	15,089,382.00	14,198,000.00	3,897,000.00	4,733,000.00	0.35 43,112,520.00
	T-6	-0.145075	0.039052	0.068401	0.686264	0.355848	-4261000	1,147,000.00	2,009,000.00	29,371,000.00	11,833,940.04	17,244,000.00	5,216,000.00	9,477,000.00	0.51 23,203,804.00
	T-7	0.044728	0.046018	0.09338	1.548801	2.697193	798000	821,000.00	1,666,000.00	17,841,000.00	9,583,980.00	6,188,000.00	5,627,000.00	4,829,000.00	0.42 22,819,000.00
	T-8	0.152808	0.0446	0.142549	5.789831	8.185065	1415000	413,000.00	1,320,000.00	9,260,000.00	7,173,600.00	1,239,000.00	2,504,000.00	1,089,000.00	0.42 17,080,000.00
Centaur Mining	T-0 2000	0.064511	-0.476301	-0.012874	1.311458	0.160969	37822000	-279,248,000.00	-7,548,000.00	586,285,000.00	623,923,428.00	475,748,000.00	105,461,000.00	67,639,000.00	1.20 519,936,190.00
	T-1	0.133615	-0.394938	-0.047264	2.548577	1.947409	81183000	-239,960,000.00	-28,717,000.00	607,588,984.00	#####	457,643,000.00	130,475,000.00	49,292,000.00	2.65 440,127,680.00
	T-2	0.145879	-0.177649	-0.009851	6.058533	6.673095	99591000	-121,280,000.00	-6,725,000.00	682,696,016.00	#####	414,082,008.00	165,601,000.00	66,010,000.00	5.70 440,128,000.00
	T-3	0.036582	-0.431456	-0.040611	123.4112	128.1423	9944000	-117,281,000.00	-11,039,000.00	271,826,000.00	#####	60,628,000.00	57,598,000.00	47,654,000.00	17.00 440,128,000.00
	T-4	0.011695	-1.690272	-0.027439	254.1394	261.2284	956000	-138,172,992.00	-2,243,000.00	81,746,000.00	#####	21,918,000.00	20,006,000.00	19,050,000.00	17.40 320,128,000.00
	T-5	-0.943244	-9.787237	-0.197264	24.63209	-13.556	-12963000	-134,506,000.00	-2,711,000.00	13,743,000.00	#####	45,004,000.00	1,376,000.00	14,339,000.00	5.80 191,128,000.00
	T-6	-0.874596	-11.24364	0.013196	25.75159	-15.26378	-10008000	-128,661,000.00	151,000.00	11,443,000.00	955,075,000.00	37,088,000.00	1,761,000.00	11,769,000.00	5.00 191,015,000.00
	T-7	-0.283556	-16.31571	-0.114635	1.423594	-54.3249	-3228000	-185,738,000.00	-1,305,000.00	11,384,000.00	138,920,000.00	97,584,000.00	1,990,000.00	5,218,000.00	0.80 173,650,000.00
	T-8	-1.020552	-10.54011	-0.051467	2.63986	-38.6296	-17529000	-181,037,000.00	-884,000.00	17,176,000.00	260,475,000.00	98,670,000.00	2,479,000.00	20,008,000.00	1.50 173,650,000.00
Central Norseman Gold	T-0 2001	0.058616	0.196212	0.10545	1.838313	3.663024	3448000	11,542,000.00	6,203,000.00	58,824,000.00	74,880,000.00	40,733,000.00	32,042,000.00	28,594,000.00	0.36 208,000,000.00
	T-1	-0.055431	0.092117	0.121045	0.918076	1.714077	-4273000	7,101,000.00	9,331,000.00	77,087,000.00	58,240,000.00	63,437,000.00	39,304,000.00	43,577,000.00	0.28 208,000,000.00
	T-2	-0.099247	0.040291	0.175546	1.722032	2.468087	-6673000	2,709,000.00	11,803,000.00	67,236,000.00	99,840,000.00	57,978,000.00	28,736,000.00	35,409,000.00	0.48 208,000,000.00
	T-3	-0.078162	0.010066	0.300891	1.969589	3.610127	-4853000	625,000.00	18,682,000.00	62,089,000.00	108,160,000.00	54,915,000.00	34,222,000.00	39,075,000.00	0.52 208,000,000.00
	T-4	0.287422	0.2089	0.005536	1.622065	4.306875	25751000	18,716,000.00	496,000.00	89,593,000.00	79,040,000.00	48,728,000.00	45,684,000.00	19,933,000.00	0.38 208,000,000.00
	T-5	0.321037	0.28142	0.12583	5.422769	9.562921	23776000	20,842,000.00	9,319,000.00	74,060,000.00	168,480,000.00	31,069,000.00	43,215,000.00	19,439,000.00	0.81 208,000,000.00
	T-6	0.202973	0.267173	0.093791	6.146801	9.286901	16538000	21,769,000.00	7,642,000.00	81,479,000.00	230,880,000.00	37,561,000.00	51,101,000.00	34,563,000.00	1.11 208,000,000.00

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	Company financial data for factor calcs										CA	CL	Share price	No. shares	
		X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity					BV Debt
	T-7	0.411784	0.420652	0.12627	8.29801	13.63407	29996000	30,642,000.00	9,198,000.00	72,844,000.00	166,400,000.00	20,053,000.00	46,507,000.00	16,511,000.00	0.80	208,000,000.00
	T-8	0.39301	0.464566	-0.002861	19.12322	24.15279	22804000	26,956,000.00	-166,000.00	58,024,000.00	170,560,000.00	8,919,000.00	30,757,000.00	7,953,000.00	0.82	208,000,000.00
	T-9	0.286913	0.389638	0.027733	3.505393	7.019395	20174000	27,397,000.00	1,950,000.00	70,314,000.00	72,800,000.00	20,768,000.00	35,336,000.00	15,162,000.00	0.35	208,000,000.00
Chameleon Mining	T-0 1994	0.026409	-0.806875	-0.727317	10.25806	3.426218	161023	-4,919,754.00	-4,434,666.00	6,097,292.00	4,166,433.25	406,162.00	230,961.00	69,938.00	0.05	83,328,665.00
	T-1	-0.184983	-0.10431	-0.066052	11.81048	10.4036	-860253	-485,088.00	-307,171.00	4,650,446.00	14,165,873.05	1,199,432.00	339,179.00	1,199,432.00	0.17	83,328,665.00
Child Care Centres	T-0 2004	0.010209	0.003988	0.023611	4.650672	5.121843	1065000	416,000.00	2,463,000.00	104,317,000.00	102,221,765.80	21,980,000.00	22,283,000.00	21,218,000.00	1.40	73,015,547.00
	T-1	0.151806	0.000698	0.032865	1.330032	2.615511	7178000	33,000.00	1,554,000.00	47,284,000.00	29,284,637.60	22,018,000.00	13,814,000.00	6,636,000.00	0.80	36,605,797.00
	T-2	-0.312678	0	0.224739	7.932203	7.78789	-6585000	0.00	4,733,000.00	21,060,000.00	52,416,000.00	6,608,000.00	23,000.00	6,608,000.00	1.80	29,120,000.00
China Convergent	T-0 2002	0.079749	-26.66066	-0.261472	0	-88.14771	4442000	#####	-14,564,000.00	55,700,000.00	0.00	40,252,000.00	19,450,000.00	15,008,000.00	0.00	#####
	T-1	0.038632	-17.51907	-0.285076	0.966506	-57.75963	3227000	#####	-23,813,000.00	83,532,000.00	37,204,668.48	38,494,000.00	16,678,000.00	13,451,000.00	0.01	#####
	T-2	0.008363	-0.05125	-0.014496	2.501693	2.417152	12320000	-75,496,000.00	-21,354,000.00	#####	392,898,320.21	157,053,000.00	62,825,000.00	50,505,000.00	0.11	#####
	T-3	-0.062136	-0.341148	-0.06948	2.767521	0.919238	-2340338	-12,849,329.08	-2,616,967.69	37,664,974.62	79,080,663.20	28,574,548.46	6,315,861.96	8,656,199.58	0.77	102,702,160.00
Clifford Corporation	T-0 1998	0.167621	0.012335	-0.003494	0	1.116326	20982000	1,544,000.00	-437,388.00	125,175,000.00	0.00	69,474,000.00	60,931,000.00	39,949,000.00		129,008,664.00
	T-1	0.267199	0.071664	0.166111	0	3.102711	26353000	7,068,000.00	16,383,000.00	98,627,000.00	0.00	45,037,000.00	49,820,000.00	23,467,000.00		72,109,432.00
	T-2	0.100758	0.044156	0.080033	0	1.342744	3870000	1,696,000.00	3,074,000.00	38,409,000.00	0.00	12,567,000.00	15,804,000.00	11,934,000.00		53,747,000.00
	T-3	0.088373	0.026187	0.113126	0	1.425306	1603000	475,000.00	2,052,000.00	18,139,000.00	0.00	2,127,000.00	3,701,000.00	2,098,000.00		35,454,000.00
	T-4	-7.915254	-90.74576	-2.152542	0	-362.2203	-467000	-5,354,000.00	-127,000.00	59,000.00	0.00	470,000.00	3,000.00	470,000.00		35,454,000.00
	T-5	-7.488372	-121.5581	-4.44186	0	-475.2526	-322000	-5,227,000.00	-191,000.00	43,000.00	0.00	327,000.00	5,000.00	327,000.00		35,203,000.00
	T-6	-2.68254	-82.28571	-4.904762	0	-318.8089	-169000	-5,184,000.00	-309,000.00	63,000.00	0.00	181,000.00	12,000.00	181,000.00		35,203,000.00
Coplex	T-0 1998	0.259097	-0.129594	-0.172541	3.732931	4.0373	28126000	-14,068,000.00	-18,730,000.00	108,554,000.00	19,090,208.16	5,114,000.00	33,237,000.00	5,111,000.00	0.09	212,113,424.00
	T-1	-0.151039	-0.351592	-0.042364	1.386283	-0.966091	-20301680	-47,258,695.00	-5,694,260.00	134,413,578.00	74,452,922.28	53,706,876.00	24,480,785.00	44,782,465.00	0.36	206,813,673.00
	T-2	0.091112	-0.292215	-0.023684	2.763111	2.387239	8955619	-28,719,910.00	-2,327,731.00	98,283,592.00	49,904,062.00	18,060,826.00	27,016,445.00	18,060,826.00	0.26	191,938,700.00
	T-3	0.012164	-0.430925	-0.0435	2.03793	0.522488	776000	-27,490,000.00	-2,775,000.00	63,793,000.00	34,549,020.00	16,953,000.00	12,255,000.00	11,479,000.00	0.18	191,939,000.00
	T-4	-0.023983	-0.365099	-0.052993	3.292782	1.753757	-1398000	-21,282,000.00	-3,089,000.00	58,291,000.00	40,484,750.00	12,295,000.00	4,545,000.00	5,943,000.00	0.25	161,939,000.00
	T-5	0.06007	-0.12916	-0.055318	7.272066	7.236929	4096000	-8,807,000.00	-3,772,000.00	68,187,000.00	106,208,520.00	14,605,000.00	8,428,000.00	4,332,000.00	0.66	160,922,000.00
	T-6	0.165159	-0.116877	-0.061066	7.040128	7.684189	7228000	-5,115,000.00	-2,672,513.00	43,764,000.00	86,825,900.00	12,333,000.00	19,415,000.00	12,187,000.00	0.71	122,290,000.00
Cudgen Rz	T-0 1997	-0.098351	-0.369106	0.15639	0	-0.797529	-11318000	-42,476,000.00	17,997,000.00	115,078,000.00	0.00	103,180,000.00	54,180,000.00	65,498,000.00		36,651,160.00
	T-1	0.155235	0.241428	0.128353	0	2.667925	31062000	48,309,000.00	25,683,000.00	200,097,000.00	0.00	51,543,000.00	56,593,000.00	25,531,000.00		36,651,160.00
	T-2	0.083345	0.225981	0.104437	0	1.985251	15395000	41,742,000.00	19,291,000.00	184,715,000.00	0.00	51,404,000.00	45,111,000.00	29,716,000.00		36,651,160.00
	T-3	0.051252	0.214292	0.051887	0	1.383482	8723000	36,472,000.00	8,831,000.00	170,198,000.00	0.00	52,267,000.00	37,448,000.00	28,725,000.00		35,786,000.00
	T-4	0.293104	0.32115	0.126999	0	3.823149	43465000	47,624,000.00	18,833,000.00	148,292,000.00	0.00	35,122,000.00	67,293,000.00	23,828,000.00		31,250,000.00
	T-5	0.24219	0.312779	0.143444	0	3.572368	34320000	44,323,000.00	20,327,000.00	141,707,000.00	0.00	37,102,000.00	58,897,000.00	24,577,000.00		31,250,000.00
	T-6	0.362921	0.295405	0.235855	0	4.928724	50851000	41,391,000.00	33,047,000.00	140,116,000.00	0.00	41,799,000.00	80,105,000.00	29,254,000.00		
	T-7	0.298915	0.25607	0.446953	0	5.799199	43792000	37,515,000.00	65,480,000.00	146,503,000.00	0.00	55,698,000.00	87,279,000.00	43,487,000.00		
	T-8	0.221897	0.238473	0.489359	0	5.521559	26974000	28,989,000.00	59,487,000.00	121,561,000.00	0.00	47,745,000.00	63,665,000.00	36,691,000.00		

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company financial data for factor calcs																	
Company	Period	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt	CA	CL	Share price	No. shares	
Denehurst	T-0 1997	0.011137	-2.270045	-0.22943		0	-8.869058	371000	-75,622,000.00	-7,643,000.00	33,313,000.00	0.00	35,814,000.00	15,928,000.00	15,557,000.00	71,058,832.00	
	T-1	-0.032788	-0.383261	-0.268696		0	-3.270159	-3643000	-42,583,000.00	-29,854,000.00	111,107,000.00	0.00	78,634,000.00	35,029,000.00	38,672,000.00	71,058,832.00	
	T-2	-0.07122	-0.089938	-0.013763		0	-0.85289	-12564000	-15,866,000.00	-2,428,000.00	176,411,000.00	0.00	103,026,000.00	39,445,000.00	52,009,000.00	71,058,832.00	
	T-3	0.140874	-0.042477	-0.034698		0	0.552488	21859000	-6,591,000.00	-5,384,000.00	155,167,000.00	0.00	74,057,000.00	49,185,000.00	27,326,000.00	67,559,000.00	
	T-4	0.000186	-0.022774	-0.110455		0	-0.815281	26000	-3,183,000.00	-15,438,000.00	139,767,000.00	0.00	62,066,000.00	32,415,000.00	32,389,000.00	65,410,000.00	
	T-5	-0.050053	0.057302	0.009213		0	-0.079633	-7644000	8,751,000.00	1,407,000.00	152,717,000.00	0.00	70,180,000.00	35,709,000.00	43,353,000.00	65,410,000.00	
	T-6	-0.036453	0.075091		0	0	0.005665	-5305000	10,928,000.00		145,530,000.00	0.00	66,695,000.00	30,480,000.00	35,785,000.00		
	T-7	-0.068786	0.066741		0	0	-0.233658	-9453000	9,172,000.00		137,427,000.00	0.00	63,514,000.00	38,912,000.00	48,365,000.00		
	T-8	-0.023367	0.031255		0	0	-0.0514	-2939000	3,931,000.00		125,773,000.00	0.00	69,535,000.00	48,861,000.00	51,800,000.00		
Ectec	T-0 1999	0.139149	0.075007	-0.144993	0.193298	0.385955	6096000	3,286,000.00	-6,352,000.00	43,809,000.00	4,988,451.60	25,807,000.00	24,020,000.00	17,924,000.00	0.36	13,856,810.00	
	T-1	0.259914	0.099601	0.037001	0.307212	2.600951	14590000	5,591,000.00	2,077,000.00	56,134,000.00	11,021,535.20	35,876,000.00	34,756,000.00	20,166,000.00	0.80	13,776,919.00	
	T-2	0.171076	0.090319	0.066228	0.367692	2.247828	9537000	5,035,000.00	3,692,000.00	55,747,000.00	13,312,293.54	36,205,000.00	32,970,000.00	23,433,000.00	0.98	13,583,973.00	
	T-3	0.095451	0.060715	0.083667	0.545219	1.958808	5581000	3,550,000.00	4,892,000.00	58,470,000.00	22,141,333.50	40,610,000.00	34,542,000.00	28,961,000.00	1.65	13,418,990.00	
	T-4	0.131809	0.036694	0.118179	0.335927	2.131175	8075000	2,248,000.00	7,240,000.00	61,263,000.00	15,306,500.00	45,565,000.00	39,128,000.00	31,053,000.00	1.15	13,310,000.00	
	T-5	0.012119	-0.00606	0.071796	0.326831	0.885388	592000	-296,000.00	3,507,000.00	48,847,000.00	11,734,200.00	35,903,000.00	27,683,000.00	27,091,000.00	0.90	13,038,000.00	
	T-6	0.028378	-0.017078	0.041959	0.334726	0.76391	1331000	-801,000.00	1,968,000.00	46,903,000.00	11,714,400.00	34,997,000.00	25,356,000.00	24,025,000.00	0.90	13,016,000.00	
	T-7	0.153438	-0.025619	0.043576	0.119581	1.341422	6648000	-1,110,000.00	1,888,000.00	43,327,000.00	3,904,800.00	32,654,000.00	24,365,000.00	17,717,000.00	0.30	13,016,000.00	
Farnell & Thomas	T-0 1999	0.001145	0.001472	0.036111		0	0.254974	49000	63,000.00	1,546,000.00	42,812,000.00	0.00	24,597,000.00	21,440,000.00	21,391,000.00	1.21	0.00
	T-1	-0.002147	-0.001382	0.020809	0.697765	0.853905	-101000	-65,000.00	979,000.00	47,046,000.00	20,206,575.90	28,959,000.00	27,123,000.00	27,224,000.00	1.35	14,967,834.00	
	T-2	-0.100912	-0.296539	0.015435	1.667031	0.225406	-863000	-2,536,000.00	132,000.00	8,552,000.00	7,181,571.54	4,308,000.00	3,038,000.00	3,901,000.00	0.97	7,403,682.00	
	T-3	-0.009086	0.082975	0.063182	0.49588	1.156152	-129000	1,178,000.00	897,000.00	14,197,000.00	4,035,471.96	8,138,000.00	7,000,000.00	7,129,000.00	0.78	5,173,682.00	
	T-4	0.001835	-0.027694	-0.012346	1.496276	1.409882	11000	-166,000.00	-74,000.00	5,994,000.00	2,398,530.00	1,603,000.00	771,000.00	760,000.00	0.51	4,703,000.00	
	T-5	0.086264	0.022747	-0.013123	3.227084	3.940298	493000	130,000.00	-75,000.00	5,715,000.00	3,198,040.00	991,000.00	877,000.00	384,000.00	0.68	4,703,000.00	
	T-6	0.038786	0.068774	0.014724	4.876115	5.697507	216000	383,000.00	82,000.00	5,569,000.00	6,451,100.00	1,323,000.00	914,000.00	698,000.00	1.55	4,162,000.00	
	T-7	0.034011	0.232332	0.097173		0	1.633516	77000	526,000.00	220,000.00	2,264,000.00	0.00	999,000.00	718,000.00	641,000.00	0	550,000.00
Federation Group	T-0 2003	-0.354003	-10.48917	-0.871886	1.184935	-41.13184	-1857795	-55,046,792.00	-4,575,626.00	5,247,965.00	3,118,455.20	2,631,752.00	773,957.00	2,631,752.00	0.04	77,961,380.00	
	T-1	0.459354	-3.031446	-0.548023	10.77152	0.758223	6433490	-42,457,001.00	-7,675,352.00	14,005,528.00	18,066,396.00	1,677,238.00	8,110,728.00	1,677,238.00	0.75	24,088,528.00	
	T-2	0.020496	-3.804495	-0.384788	42.47765	29.74756	187202	-34,748,735.00	-3,514,498.00	9,133,600.00	33,214,803.96	781,936.00	969,138.00	781,936.00	1.56	21,291,541.00	
	T-3	0.04879	-6.166512	-0.068485	33.89958	15.35157	234501	-29,638,444.00	-329,161.00	4,806,355.00	21,559,249.15	635,974.00	870,475.00	635,974.00	1.55	13,909,193.00	
	T-4	-0.209435	-9.053848	-0.42538	1.784856	-31.87389	-657769	-28,435,212.00	-1,335,980.00	3,140,677.00	1,577,386.23	883,761.00	225,992.00	883,761.00	0.21	7,511,363.00	
	T-5	-0.058351	-7.930124	-0.227536	91.14197	67.93504	-201067	-27,325,788.00	-784,049.00	3,445,821.00	54,804,850.88	601,313.00	400,246.00	601,313.00	0.41	133,670,368.00	
	T-6	0.003933	-5.682608	-0.133154	174.7118	164.0531	17663	-25,519,716.00	-597,972.00	4,490,846.00	135,895,923.20	777,829.00	795,492.00	777,829.00	1.15	118,170,368.00	
	T-7	-0.58752	-7.536229	-0.188164	66.97941	40.64168	-1941416	-24,902,896.00	-621,774.00	3,304,424.00	131,329,011.84	1,960,737.00	19,321.00	1,960,737.00	1.56	84,185,264.00	
	T-8	-0.348825	-5.935138	-0.171093	91.02602	72.79073	-1366000	-23,242,000.00	-670,000.00	3,916,000.00	138,723,650.00	1,524,000.00	158,000.00	1,524,000.00	1.69	82,085,000.00	
	T-9	0.018781	-5.983125	-0.09853	1465.067	1518.276	69000	-21,982,000.00	-362,000.00	3,674,000.00	287,153,100.00	196,000.00		265,000.00	196,000.00	3.51	81,810,000.00
Golden West Refining	T-0 2000	-0.074131	-0.883198	0.277581	1.768836	0.357102	-1362000	-16,227,000.00	5,100,000.00	18,373,000.00	20,578,643.28	11,634,000.00	2,103,000.00	3,465,000.00	\$0.36	57,162,898.00	
	T-1	0.170445	0.069631	0.191382	0.723065	3.390423	13840000	5,654,000.00	15,540,000.00	81,199,000.00	36,465,605.80	50,432,000.00	45,391,000.00	31,551,000.00	\$0.65	56,100,932.00	
	T-2	0.223998	0.048227	0.235037	1.118121	4.380121	14143000	3,045,000.00	14,840,000.00	63,139,000.00	39,270,652.40	35,122,000.00	38,531,000.00	24,388,000.00	\$0.70	56,100,932.00	
	T-3	0.086478	-0.02157	0.139103	2.12817	3.666333	3893000	-971,000.00	6,262,000.00	45,017,000.00	50,490,838.80	23,725,000.00	23,268,000.00	19,375,000.00	\$0.90	56,100,932.00	
	T-4	0.309126	-0.13311	0.052501	4.360334	6.525084	4993000	-2,150,000.00	848,000.00	16,152,000.00	24,548,680.00	5,630,000.00	7,498,000.00	2,505,000.00	\$0.68	36,101,000.00	
	T-5	0.447359	-0.36349	0.148108	13.69794	17.12783	2507000	-2,037,000.00	830,000.00	5,604,000.00	8,396,840.00	613,000.00	3,030,000.00	523,000.00	\$0.46	18,254,000.00	

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	Company financial data for factor calcs										CA	CL	Share price	No. shares	
		X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity					BV Debt
Greyhound Pioneer	T-6	0.286413	-1.634691	0.124902	9.567086	7.434563	1463000	-8,350,000.00	638,000.00	5,108,000.00	9,127,000.00	954,000.00	2,326,000.00	863,000.00	\$0.25	36,508,000.00
	T-7	0.276276	-1.93136	0.132132	34.07917	32.1872	1288000	-9,004,000.00	616,000.00	4,662,000.00	39,600,000.00	1,162,000.00	2,393,000.00	1,105,000.00	\$0.11	360,000,000.00
	T-0 1999	-1.184785	-1.488186	0.20895	0.184051	-11.02628	-19857000	-24,942,000.00	3,502,000.00	16,760,000.00	4,827,651.15	26,230,000.00	4,982,000.00	24,839,000.00	\$0.35	13,793,289.00
	T-1	-0.554302	-1.411674	0.198266	0.142634	-6.756164	-9335000	-23,774,000.00	3,339,000.00	16,841,000.00	3,586,255.14	25,143,000.00	6,071,000.00	15,406,000.00	\$0.26	13,793,289.00
	T-2	-0.674737	-1.522706	-0.000799	0.113498	-9.276495	-10980000	-24,779,000.00	-13,000.00	16,273,000.00	2,903,383.50	25,581,000.00	4,416,000.00	15,396,000.00	\$0.30	9,677,945.00
	T-3	-0.568358	-0.657793	0.079139	3.122678	-2.062208	-16396000	-18,976,000.00	2,283,000.00	28,848,000.00	74,988,000.00	24,014,000.00	5,786,000.00	22,182,000.00	\$0.30	249,960,000.00
	T-4	-0.839765	-0.321504	0.065954	0.074057	-6.035988	-23568000	-9,023,000.00	1,851,000.00	28,065,000.00	2,268,000.00	30,625,000.00	6,023,000.00	29,591,000.00	\$0.40	5,670,000.00
T-5	-0.649526	-0.93122	-0.049771	0.37316	-7.239311	-22825000	-32,724,000.00	-1,749,000.00	35,141,000.00	12,757,230.72	34,187,000.00	9,643,000.00	32,468,000.00	\$0.09	141,747,008.00	
T-6	-0.395373	-0.116535	0.015766	0.53602	-2.304783	-26131000	-7,702,000.00	1,042,000.00	66,092,000.00	22,039,521.28	41,117,000.00	12,394,000.00	38,525,000.00	\$0.16	137,747,008.00	
Henry Walker Eltin	T-0 2004	0.226992	0.066729	0.034028	0.362756	2.316162	165403000	48,624,000.00	24,795,000.00	728,674,000.00	173,262,206.52	477,628,000.00	421,041,000.00	255,638,000.00	\$0.86	201,467,682.00
	T-1	0.120009	0.049877	0.045581	0.230155	1.497823	79658000	33,107,000.00	30,255,000.00	663,768,000.00	105,886,690.56	460,066,000.00	295,912,000.00	216,254,000.00	\$0.64	165,447,954.00
	T-2	0.213282	0.073843	0.04773	0.222894	2.194641	163770000	56,701,000.00	36,650,000.00	767,858,000.00	119,122,526.88	534,436,000.00	374,287,000.00	210,517,000.00	\$0.72	165,447,954.00
	T-3	0.17303	0.090267	0.05027	0.269574	2.050218	146602000	76,480,000.00	42,592,000.00	847,262,000.00	158,446,035.84	587,764,000.00	382,994,000.00	236,392,000.00	\$0.96	165,047,954.00
	T-4	0.067628	0.096707	0.066227	0.395673	1.619406	53631000	76,692,000.00	52,520,000.00	793,032,000.00	212,718,360.66	537,611,000.00	348,639,000.00	295,008,000.00	\$1.29	164,897,954.00
	T-5	0.007218	0.094508	0.055099	0.771943	1.536251	5173000	67,733,000.00	39,489,000.00	716,690,984.00	355,147,941.12	460,070,000.00	275,705,000.00	270,532,000.00	\$2.04	174,092,128.00
	T-6	0.082929	0.147691	0.102285	0.72607	2.475216	33569000	59,784,000.00	41,404,000.00	404,791,000.00	189,873,042.88	261,508,000.00	201,075,000.00	167,506,000.00	\$1.72	110,391,304.00
	T-7	0.101172	0.134833	0.101697	1.29444	3.14581	36660000	48,857,000.00	36,850,000.00	362,351,992.00	303,496,914.56	234,462,000.00	163,286,000.00	126,626,000.00	\$2.78	109,171,552.00
	T-8	0.06806	0.128558	0.108029	1.098883	2.745351	20303000	38,350,000.00	32,226,000.00	298,310,000.00	204,545,064.00	186,139,000.00	137,469,000.00	117,166,000.00	\$1.94	105,435,600.00
T-9	0.102433	0.157613	0.143165	1.072023	3.27347	19085000	29,366,000.00	26,674,000.00	186,317,000.00	107,730,850.00	100,493,000.00	96,833,000.00	77,748,000.00	\$1.15	93,679,000.00	
Huadu	T-0 2003	0.016706	-0.938611	0.058897	573.3986	599.514	295000	-16,574,000.00	1,040,000.00	17,658,000.00	20,068,950.00	35,000.00	330,000.00	35,000.00	\$0.55	36,489,000.00
	T-1	0.002323	0.071453	0.050826	1019.546	1071.113	116000	3,568,000.00	2,538,000.00	49,935,000.00	34,664,550.00	34,000.00	150,000.00	34,000.00	\$0.95	36,489,000.00
	T-2	-0.018841	0.048667	0.065099	25.76051	27.52105	-1048000	2,707,000.00	3,621,000.00	55,623,000.00	31,015,650.00	1,204,000.00	156,000.00	1,204,000.00	\$0.85	36,489,000.00
	T-3	0.005343	0.049019	0.075206	18.85673	20.49981	282000	2,587,000.00	3,969,000.00	52,775,000.00	28,096,530.00	1,490,000.00	1,772,000.00	1,490,000.00	\$0.77	36,489,000.00
	T-4	0.005688	0.053818	0.073012	52.80608	56.14978	251000	2,375,000.00	3,222,000.00	44,130,000.00	36,489,000.00	691,000.00	942,000.00	691,000.00	\$1.00	36,489,000.00
	T-5	0.003947	0.009489	0.123763	15.27447	16.9267	146000	351,000.00	4,578,000.00	36,990,000.00	32,840,100.00	2,150,000.00	2,296,000.00	2,150,000.00	\$0.90	36,489,000.00
	T-6	0.01167	0.011777	0.12728	11.0265	12.5481	437000	441,000.00	4,766,000.00	37,445,000.00	27,731,640.00	2,515,000.00	2,744,000.00	2,307,000.00	\$0.76	36,489,000.00
	T-7	0.001144	0.001417	0.09873	10.11242	11.29364	42000	52,000.00	3,624,000.00	36,706,000.00	21,893,400.00	2,165,000.00	1,999,000.00	1,957,000.00	\$0.60	36,489,000.00
	T-8	-0.000827	5.51E-05	0.040273	11.23681	12.06405	-30000	2,000.00	1,461,000.00	36,277,000.00	20,068,950.00	1,786,000.00	1,548,000.00	1,578,000.00	\$0.55	36,489,000.00
T-9	-0.071182	0	0.035033	0	-0.23153	-638000	0	314,000.00	8,963,000.00	0.00	5,963,000.00	3,901,000.00	4,539,000.00		5,001,000.00	
Investment Austasia	T-0 1997	0.118947	-0.00505	-0.000529	0.535024	1.322049	10341000	-439,000.00	-46,000.00	86,938,000.00	7,534,744.80	14,083,000.00	24,023,000.00	13,682,000.00	\$0.15	50,231,632.00
	T-1	0.243937	-0.015764	0.016174	11.75991	14.00543	14886000	-962,000.00	987,000.00	61,024,000.00	17,581,071.20	1,495,000.00	16,213,000.00	1,327,000.00	\$0.35	50,231,632.00
	T-2	0.283008	-0.016008	0.00795	20.93	23.83427	18404000	-1,041,000.00	517,000.00	65,030,000.00	17,581,200.00	840,000.00	18,725,000.00	321,000.00	\$0.35	50,232,000.00
	T-3	0.278545	-0.018266	0.016431	23.66116	26.72234	18970000	-1,244,000.00	1,119,000.00	68,104,000.00	37,171,680.00	1,571,000.00	20,048,000.00	1,078,000.00	\$0.74	50,232,000.00
	T-4	-0.008335	4.03E-05	0.028046	23.35625	24.65798	-414000	2,000.00	1,393,000.00	49,669,000.00	41,083,640.00	1,759,000.00	1,345,000.00	1,759,000.00	\$0.82	50,102,000.00
Ion	T-0 2004	-0.000944	0.077795	0.123799	1.135752	2.271892	-647000	53,335,000.00	84,875,000.00	685,585,000.00	441,279,325.92	388,535,000.00	147,009,000.00	147,656,000.00	\$1.74	253,608,808.00
	T-1	0.009596	0.084628	0.130566	1.117248	2.389351	5953000	52,500,000.00	80,998,000.00	620,361,000.00	435,689,818.00	389,967,000.00	164,235,000.00	158,282,000.00	\$2.00	217,844,909.00
	T-2	0.031111	0.024575	0.102237	2.183554	3.263969	13980000	11,043,000.00	45,941,000.00	449,357,000.00	595,509,667.62	272,725,000.00	128,550,000.00	114,570,000.00	\$2.82	211,173,641.00
	T-3	-0.117216	-0.02459	0.163053	1.970677	2.315823	-17704000	-3,714,000.00	24,627,000.00	151,037,000.00	191,796,178.14	97,325,000.00	33,535,000.00	51,239,000.00	\$1.26	152,219,189.00
	T-4	-0.118958	-0.191569	0.114473	1.234957	0.661087	-6101000	-9,825,000.00	5,871,000.00	51,287,000.00	40,532,520.24	32,821,000.00	20,747,000.00	26,848,000.00	\$0.36	112,590,334.00

Sheet 2 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt	CA	CL	Share price	No. shares
	T-5	0.052064	-5.9707	-0.059917	12.86516	-6.017164	Working cap	Ret earnings	EBIT							
	T-6	0.012815	-4.840079	-0.078733	21.2874	6.128098	30151	-11,387,302.00	-117,044.00	1,953,446.00	2,155,866.72	167,574.00	269,278.00	167,574.00	\$0.08	26,948,334.00
	T-7	0.056538	-4.358136	-0.080815	100.8995	91.56478	145277	-11,198,414.00	-207,658.00	2,569,542.00	29,643,167.40	293,789.00	341,847.00	196,570.00	\$1.10	26,948,334.00
	T-8	0.114346	-7.144516	-0.075557	183.7112	169.848	293906	-18,363,636.00	-194,204.00	2,570,312.00	61,980,672.32	337,381.00	539,379.00	245,473.00	\$0.23	269,481,184.00
	T-9	-0.025126	-6.519742	-0.120962	83.73703	65.69184	-70000	-18,164,000.00	-337,000.00	2,786,000.00	29,642,909.12	354,000.00	190,000.00	260,000.00	\$0.11	269,480,992.00
Jennings	T-0 1994	-0.32111	-2.254002	-0.033184	0.291199	-9.37177	-67272000	-472,209,000.00	-6,952,000.00	209,498,000.00	128,525,712.26	441,367,000.00	27,394,000.00	94,666,000.00	\$0.22	584,207,783.00
	T-1	-0.546555	-1.453876	0.005218	0.052191	-8.235171	-1.69E+08	-448,592,000.00	1,610,000.00	308,549,000.00	30,147,251.04	577,629,000.00	36,840,000.00	205,479,000.00	\$0.08	376,840,638.00
	T-2	-0.187949	-0.872473	0.016248	0.039421	-3.92663	-1E+08	-466,097,000.00	8,680,000.00	534,225,000.00	33,178,744.16	841,657,000.00	198,308,000.00	298,715,000.00	\$0.16	207,367,151.00
	T-3	-0.348771	-0.079729	0.020166	0.227769	-2.17318	-1.65E+08	-37,821,000.00	9,566,000.00	474,372,000.00	167,967,392.31	737,447,000.00	85,180,000.00	250,627,000.00	\$0.81	207,367,151.00
	T-4	-0.41612	0.131975	0.110026	0.491204	-1.044374	-2.48E+08	78,558,000.00	65,493,000.00	595,251,000.00	342,155,799.15	696,566,000.00	120,575,000.00	368,271,000.00	\$1.65	207,367,151.00
	T-5	-0.604515	0.151406	0	0	-3.472037	-3.11E+08	77,959,000.00		514,902,000.00	0.00	675,808,000.00	124,233,000.00	435,499,000.00		
	T-6	-0.301604	0.146733	0	0	-1.500173	-1.32E+08	64,209,000.00		437,590,000.00	0.00	420,296,000.00	75,689,000.00	207,668,000.00		
Kinetic Power	T-0 1997	-0.195777	-0.07124	-0.104462	0	-2.218524	-1795820	-653,471.00	-958,209.00	9,172,790.00	0.00	3,428,760.00	1,495,586.00	3,291,406.00		6,397,503.00
Laverton Gold	T-0 2001	-1458.556	-6617	-13.77778	0.431317	-31231.68	-13127000	-59,553,000.00	-124,000.00	9,000.00	5,665,775.55	13,136,000.00	9,000.00	13,136,000.00	\$0.03	188,859,185.00
	T-1	-1.155224	-1.734222	-0.549118	0.101194	-16.81565	-43296000	-65,001,352.00	-20,581,789.00	37,481,561.00	5,665,775.52	55,989,512.00	12,233,431.00	55,533,031.00	\$0.03	188,859,184.00
	T-2	-0.339506	-0.444632	-0.166052	0.169151	-4.614918	-21422777	-28,056,248.00	-10,477,832.00	63,099,879.00	7,554,367.36	44,660,552.00	9,820,039.00	31,242,816.00	\$0.04	188,859,184.00
	T-3	-0.144278	-0.161865	-0.02277	0.725558	-0.865322	-13135476	-14,736,711.00	-2,073,069.00	91,043,073.00	43,207,612.32	59,550,870.00	23,477,380.00	36,612,856.00	\$0.23	187,859,184.00
	T-4	-0.205327	-0.255626	-0.008968	2.84599	0.747739	-8009693	-9,971,837.00	-349,828.00	39,009,431.00	48,635,529.60	17,089,142.00	3,938,956.00	11,948,649.00	\$0.42	115,798,880.00
	T-5	0.035473	-0.048934	-0.035862	2.708549	2.676162	809000	-1,116,000.00	-817,863.00	22,806,000.00	16,386,720.00	6,050,000.00	2,583,000.00	1,774,000.00	\$0.28	58,524,000.00
	T-6	0.122967	-0.758816	0.071595	3.105887	2.075228	1346000	-8,306,000.00	783,683.00	10,946,000.00	15,125,670.00	4,870,000.00	1,940,000.00	594,000.00	\$0.27	56,021,000.00
	T-7	0.697831	-2.291698	0.035826	177.4643	183.6852	2799000	-9,192,000.00	143,698.00	4,011,000.00	4,081,680.00	23,000.00	2,822,000.00	23,000.00	\$0.08	51,021,000.00
	T-8	0.534195	-2.552504	0.052504	109.3307	110.3332	1984000	-9,480,000.00	195,000.00	3,714,000.00	1,530,630.00	14,000.00	1,998,000.00	14,000.00	\$0.03	51,021,000.00
Macraes Mining	T-0 1997	0.177283	-0.358598	-0.774161	0	-5.208415	21755950	-44,006,596.00	-95,004,012.00	122,718,597.00	0.00	14,723,238.00	36,454,230.00	14,698,280.00		126,816,024.00
	T-1	0.191564	0.11681	0.105625	0	2.347261	41923582	25,563,750.00	23,115,774.76	218,848,511.00	0.00	41,768,998.00	57,257,215.00	15,333,633.00		126,783,100.00
	T-2	0.219818	0.069178	0.056903	0	2.049919	44208689	13,912,730.00	11,444,039.62	201,114,506.00	0.00	37,646,100.00	62,953,688.00	18,744,999.00		126,711,000.00
	T-3	0.237626	0.06985	0.066656	0	2.234464	42470442	12,484,160.00	11,913,299.11	178,728,226.00	0.00	25,516,790.00	53,757,732.00	11,287,290.00		126,461,000.00
	T-4	0.355643	0.053815	0.066173	0	2.953134	71924186	10,883,320.00	13,382,580.00	202,237,056.00	0.00	50,466,022.00	97,189,037.00	25,264,851.00		126,404,000.00
	T-5	-0.001907	0.06697	0.074281	0	0.704979	-212896	7,475,976.00	8,292,172.12	111,632,428.00	0.00	50,122,961.00	19,604,271.00	19,817,167.00		115,114,000.00
	T-6	0.020061	0.041686	0.072557	0	0.755083	2049770	4,259,290.00	7,413,566.11	102,175,390.00	0.00	47,947,010.00	17,843,720.00	15,793,950.00		57,100,860.00
Miines Holdings	T-0 2002	0.19491	0.090339	0.072541	0.824852	2.926678	15451358	7,161,564.00	5,750,623.00	79,274,506.00	38,786,078.45	47,021,886.00	39,796,307.00	24,344,949.00	\$0.95	40,827,451.00
	T-1	0.137784	0.073227	0.041058	0.869616	2.331583	10973772	5,832,123.00	3,270,039.00	79,644,969.00	43,802,673.60	50,370,138.00	37,593,617.00	26,619,845.00	\$1.12	39,109,530.00
	T-2	0.155018	0.111032	0.163155	1.327549	3.869211	10716598	7,675,749.00	11,279,078.00	69,131,146.00	51,523,161.75	38,810,733.00	35,459,810.00	24,743,212.00	\$1.35	38,165,305.00
	T-3	0.436685	0	0.324707	#VALUE!	#VALUE!	10580000	0	7,867,000.00	24,228,000.00	#VALUE!	31,294,000.00	24,228,000.00	13,648,000.00	\$--	26,343,327.00
	T-4	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	0	0	5,971,000.00	0	#VALUE!	0	0	0	\$--	26,343,327.00
	T-5	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	0	0	5,220,000.00	0	#VALUE!	0	0	0	\$--	26,343,327.00
MIM Holdings	T-0 2002	0.007693	0.049955	0.064343	0.846665	1.5347	48600000	315,600,000.00	406,500,000.00	#####	#####	#####	#####	#####	\$1.30	#####
	T-1	0.022482	0.034995	0.040693	0.384385	0.93863	187400000	291,700,000.00	339,200,000.00	#####	#####	#####	#####	#####	\$1.20	#####

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company financial data for factor calcs																
Company	Period	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt	CA	CL	Share price	No. shares
	T-2	0.004693	0.035612	0.053973	0.376026	0.904408	32100000	243,600,000.00	369,200,000.00	#####	#####	#####	#####	#####	\$0.90	#####
	T-3	0.02967	0.021562	0.033099	0.49475	1.006841	182600000	132,700,000.00	203,700,000.00	#####	#####	#####	#####	840,000,000.00	\$1.07	#####
	T-4	0.035486	0.031258	0.033625	0.313661	0.889995	230800000	203,300,000.00	218,700,000.00	#####	#####	#####	#####	#####	\$0.78	#####
	T-5	-0.005477	0.033807	0.021886	1.227112	1.509825	-26600000	164,200,000.00	106,300,000.00	#####	#####	#####	#####	#####	\$1.96	#####
	T-6	0.12477	0.035235	0.03126	1.325165	2.534847	508500000	143,600,000.00	127,400,000.00	#####	#####	#####	#####	497,300,000.00	\$1.64	#####
	T-7	0.106359	0.007676	0.009308	1.576772	2.440896	462800000	33,400,000.00	40,500,000.00	#####	#####	#####	#####	688,500,000.00	\$1.75	#####
	T-8	0.165729	0.059226	0.026932	1.70571	3.252234	933500000	333,600,000.00	151,700,000.00	#####	#####	#####	#####	593,100,000.00	\$2.88	#####
	T-9	-0.001985	0.102353	0.038088	0.914676	1.537009	-11700000	603,300,000.00	224,500,000.00	#####	#####	#####	#####	#####	\$1.87	#####
National Forge	T-0 2002	-0.145066	-0.370624	-0.120911	0.068987	-2.899954	-5441000	-13,901,000.00	-4,535,000.00	37,507,000.00	2,300,977.50	33,354,000.00	21,419,000.00	26,860,000.00	\$0.05	46,019,550.00
	T-1	0.019945	-0.139535	-0.049985	0.326802	-0.3168	735000	-5,142,000.00	-1,842,000.00	36,851,000.00	7,823,323.50	23,939,000.00	17,036,000.00	16,301,000.00	\$0.17	46,019,550.00
	T-2	0.019652	-0.074242	-0.107992	0.322003	-0.500719	644000	-2,433,000.00	-3,539,000.00	32,771,000.00	5,522,346.00	17,150,000.00	13,693,000.00	13,049,000.00	\$0.12	46,019,550.00
	T-3	0.119232	-0.093971	-0.007112	0.807158	1.275536	2917000	-2,299,000.00	-174,000.00	24,465,000.00	9,664,105.92	11,973,000.00	10,237,000.00	7,320,000.00	\$0.21	46,019,552.00
	T-4	0.075579	-0.027358	0.016674	0.080811	0.603517	1804000	-653,000.00	398,000.00	23,869,000.00	994,458.30	12,306,000.00	9,715,000.00	7,911,000.00	\$0.30	3,314,861.00
	T-5	0.18644	-0.034391	0.037101	2.06272	3.526107	3990000	-736,000.00	794,000.00	21,401,000.00	20,501,378.80	9,939,000.00	8,912,000.00	4,922,000.00	\$0.62	33,066,740.00
	T-6	-0.240505	-0.405269	0.089541	0.175265	-2.113149	-5560000	-9,369,000.00	2,070,000.00	23,118,000.00	2,995,098.40	17,089,000.00	9,158,000.00	14,718,000.00	\$0.10	29,950,984.00
	T-7	-0.062149	-0.316468	-0.111013	0.2466	-1.92646	-1759000	-8,957,000.00	-3,142,000.00	28,303,000.00	5,391,180.00	21,862,000.00	11,419,000.00	13,178,000.00	\$0.18	29,951,000.00
	T-8	0.007453	-0.119902	-0.090263	1.020054	0.122501	216000	-3,475,000.00	-2,616,000.00	28,982,000.00	19,135,200.00	18,759,000.00	10,486,000.00	10,270,000.00	\$0.70	27,336,000.00
	T-9	0.176807	0.046483	0.045073	2.339415	4.070666	4766000	1,253,000.00	1,215,000.00	26,956,000.00	28,409,850.00	12,144,000.00	9,993,000.00	5,227,000.00	\$1.05	27,057,000.00
Newmont Yandal	T-0 2002	0.346074	-1.12299	0.007485	0.663349	-0.643889	175369000	-569,063,000.00	3,793,000.00	506,739,000.00	475,799,419.48	717,269,000.00	234,942,000.00	59,573,000.00	\$1.54	308,960,662.00
	T-1	0.148831	-0.361004	0.025302	0.721883	0.727466	111283000	-269,928,000.00	18,919,000.00	747,714,000.00	475,799,419.48	659,109,000.00	226,495,000.00	115,212,000.00	\$1.54	308,960,662.00
	T-2	-0.005623	-0.256323	0.081126	0.804701	0.517602	-4251000	-193,786,000.00	61,333,000.00	756,022,000.00	475,799,419.48	591,275,000.00	40,163,000.00	44,414,000.00	\$1.54	308,960,662.00
	T-3	0.020062	0.061952	0.074657	0.704669	1.575169	22109000	68,272,000.00	82,273,000.00	#####	475,799,434.88	675,210,016.00	87,101,000.00	64,992,000.00	\$1.54	308,960,672.00
	T-4	0.004825	0.058711	0.078848	0.696266	1.483988	5281000	64,256,000.00	86,295,000.00	#####	470,226,113.28	675,354,000.00	102,351,000.00	97,070,000.00	\$1.54	305,341,632.00
	T-5	-0.031408	0.094271	0.166441	3.651662	5.054015	-14449000	43,368,000.00	76,569,000.00	460,036,000.00	640,161,900.00	175,307,000.00	30,419,000.00	44,868,000.00	\$2.52	254,032,500.00
	T-6	-0.084519	0.048756	0.1308	5.63143	6.396482	-35393000	20,417,000.00	54,774,000.00	418,760,000.00	884,033,100.00	156,982,000.00	62,797,000.00	98,190,000.00	\$3.48	254,032,500.00
	T-7	-0.02395	-0.057012	0.001242	7.383271	7.417811	-7598000	-18,087,000.00	394,000.00	317,248,000.00	768,561,640.00	104,095,000.00	15,132,000.00	22,730,000.00	\$3.08	249,533,000.00
	T-8	0.287472	-0.097893	-0.029379	32.50966	35.5044	36634000	-12,475,000.00	-3,743,959.00	127,435,000.00	701,103,300.00	21,566,000.00	52,511,000.00	15,877,000.00	\$9.85	71,178,000.00
	T-9	-0.247844	-0.130285	-0.134418	41.23563	40.34353	-5979000	-3,143,000.00	-3,242,711.00	24,124,000.00	654,327,000.00	15,868,000.00	142,000.00	6,121,000.00	\$11.50	56,898,000.00
Non-ferral Recyclers	T-0 2000	0.015484	0.009795	0.057177	0.169958	0.696189	1116000	706,000.00	4,121,000.00	72,075,000.00	8,810,112.96	51,837,000.00	47,560,000.00	46,444,000.00	\$0.27	32,630,048.00
	T-1	0.009294	0.007394	0.018182	0	0.207255	504000	401,000.00	986,000.00	54,230,000.00	0.00	39,614,000.00	33,685,000.00	33,181,000.00		21,630,048.00
	T-2	0.063267	0	0	0	0.415033	2144000	0	0	33,888,000.00	0.00	35,563,000.00	33,888,000.00	31,744,000.00		32,630,048.00
Otter Gold	T-0 2002	-0.319798	-0.732366	-0.012702	0.387116	-4.164271	-18120788	-41,498,185.59	-719,716.61	56,663,210.64	25,019,019.90	64,629,341.63	7,945,394.85	26,066,182.82	\$0.30	83,396,733.00
	T-1	-0.510381	-0.30569	-0.307695	0.178209	-6.225243	-30840905	-18,472,022.96	-18,593,177.11	60,427,227.80	9,173,640.63	51,476,964.77	8,802,805.68	39,643,711.14	\$0.11	83,396,733.00
	T-2	-0.056261	0.118803	0.061584	0.281967	0.728131	-7114552	15,023,263.28	7,787,582.22	126,455,158.03	21,745,547.46	77,120,969.04	19,438,472.65	26,553,024.23	\$0.42	51,775,113.00
	T-3	0.024736	0.180925	-0.090715	0.49706	0.66439	3110305	22,749,772.00	-11,406,650.00	125,741,277.00	32,618,333.16	65,622,476.00	22,932,927.00	19,822,622.00	\$0.63	51,775,132.00
	T-4	0.129107	0.310437	0.032515	2.151897	4.336959	12785833	30,743,332.00	3,220,000.00	99,032,497.00	71,593,620.00	33,269,999.00	21,133,333.00	8,347,500.00	\$1.05	68,184,400.00
	T-5	0.047046	0.221596	0.082069	1.426046	3.079875	5366497	25,277,370.00	9,361,587.00	114,069,658.00	54,332,662.20	38,100,223.00	16,307,748.00	10,941,251.00	\$1.14	47,660,230.00
	T-6	0.132049	0.304916	0.049706	5.391039	7.854888	9289300	21,449,960.00	3,496,705.48	70,347,126.00	134,323,268.00	24,916,028.00	16,506,232.00	7,216,932.00	\$1.97	68,184,400.00
	T-7	0.250232	0.324694	0.019253	4.276806	7.320052	13450450	17,452,900.00	1,034,900.89	53,751,888.00	66,601,500.00	15,572,721.00	16,451,581.00	3,001,131.00	\$1.50	44,401,000.00
	T-8	0.387981	0.299219	0.145105	5.790483	10.57572	18322464	14,130,670.00	6,852,596.63	47,225,176.00	73,261,650.00	12,652,080.00	21,411,024.00	3,088,560.00	\$1.65	44,401,000.00
	T-9	0.324747	0.238903	-0.024961	7.546609	10.66536	12147968	8,936,757.00	-933,743.64	37,407,506.00	64,764,350.00	8,581,914.00	13,882,133.00	1,734,165.00	\$0.95	68,173,000.00

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	Company financial data for factor calcs																
		X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt	CA	CL	Share price	No. shares		
Pasmenco	T-0 2004	-7.011592	-12.27549	-1.586089	0.023942	-96.64751	-2.06E+09	#####	-465,200,000.00	293,300,000.00	56,260,000.00	#####	293,300,000.00	#####	\$0.05	#####		
	T-1	-0.712238	-1.476814	-0.032471	0.015805	-9.688299	-1.48E+09	#####	-67,500,000.00	#####	56,257,899.95	#####	#####	#####	\$0.05	#####		
	T-2	-0.529525	-1.19373	-0.002896	0.015437	-7.368497	-1.26E+09	#####	-6,900,000.00	#####	56,257,899.95	#####	#####	#####	\$0.05	#####		
	T-3	0.187778	-0.221226	0.056836	0.137511	1.036957	619800000	#####	-730,200,000.00	187,600,000.00	#####	337,547,399.70	#####	#####	\$0.30	#####		
	T-4	0.084096	-0.014397	0.028409	0.420982	1.137675	327100000	#####	-56,000,000.00	110,500,000.00	#####	#####	896,800,000.00	569,700,000.00	\$0.89	#####		
	T-5	0.088868	-0.023374	0.038906	0.779141	1.58632	345600000	#####	-90,900,000.00	151,300,000.00	#####	#####	#####	766,000,000.00	\$1.68	#####		
	T-6	0.081239	-0.036162	0.036867	1.502439	2.240346	195900000	#####	-87,200,000.00	88,900,000.00	#####	920,700,000.00	602,900,000.00	407,000,000.00	\$1.23	#####		
	T-7	0.112088	-0.067227	0.080992	2.70458	3.900209	175900000	#####	-105,500,000.00	127,100,000.00	#####	790,800,000.00	498,000,000.00	322,100,000.00	\$2.69	795,086,100.00		
	T-8	0.126971	-0.092489	0.054665	1.907052	2.90117	190000000	#####	-138,400,000.00	81,800,000.00	#####	745,800,000.00	466,000,000.00	276,000,000.00	\$1.79	794,569,600.00		
	T-9	0.207113	-0.100674	0.03155	1.344633	2.654345	319700000	#####	-155,400,000.00	48,700,000.00	#####	803,600,000.00	524,700,000.00	205,000,000.00	\$1.36	794,520,000.00		
Phoenix Technology	T-0 2000	0.295882	-2.65042	-1.227676	43.99645	31.2469	942957	-8,446,707.00	-3,912,518.00	3,186,931.00	17,613,668.88	400,343.00	1,343,300.00	400,343.00	\$0.41	42,960,168.00		
	T-1	0.07426	-2.189251	-1.680202	27.69461	11.13857	155528	-4,585,132.00	-3,518,988.00	2,094,384.00	5,251,480.00	189,621.00	345,149.00	189,621.00	\$0.20	26,257,400.00		
	T-2	0.685545	-0.221783	-0.166159	417.8985	441.451	3659122	-1,183,776.00	-886,878.00	5,337,535.00	13,128,700.00	31,416.00	3,690,538.00	31,416.00	\$0.50	26,257,400.00		
Planar Semiconductor	T-0 2002	-0.702591	-2.664249	-1.036788	4.124188	-15.93126	-2394913	-9,081,596.61	-3,534,086.90	3,408,689.51	18,122,535.00	4,394,206.99	1,949,841.05	4,344,754.50	\$0.18	100,680,750.00		
	T-1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	-4,584,802.19	0	24,362,717.01	0	0	0	\$0.29	84,009,369.00		
	T-2	0.904044	-0.199406	-0.199406	91.70931	100.2352	3213815.9	-708,873.65	-708,873.65	3,554,933.21	27,880,623.22	304,010.83	3,517,826.71	304,010.83	\$0.34	82,001,833.00		
	T-3	0.904044	-0.199406	-0.199406	#VALUE!	#VALUE!	3277110.3	-722,834.53	-722,834.53	3,624,945.70	#VALUE!	309,998.16	3,587,108.41	309,998.16	\$--	82,001,833.00		
Recruiters Australia	T-0 2000	0.052392	0.00547	0.053163	2.207915	3.037092	2720000	284,000.00	2,760,000.00	51,916,000.00	30,241,809.92	13,697,000.00	13,776,000.00	11,056,000.00	\$0.56	54,003,232.00		
	T-1	0.610897	0	0.972339	0	10.5416	3644000	0	5,800,000.00	5,965,000.00	0	2,873,000.00	5,965,000.00	2,321,000.00		50,700,000.00		
	T-2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	3,500,000.00	0	0.00	0	0	0		50,700,000.00		
	T-3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	900,000.00	0	0.00	0	0	0		50,700,000.00		
RGC	T-0 1997	0.166009	0.079187	0.056867	0	1.729319	256600000	122,400,000.00	87,900,000.00	#####	0.00	744,400,000.00	442,700,000.00	186,100,000.00		210,031,000.00		
	T-1	0.225993	0.094011	0.081922	0	2.339502	405058000	168,500,000.00	146,832,000.00	#####	0.00	909,990,000.00	690,268,000.00	285,210,000.00		207,845,300.00		
	T-2	-0.008959	0.178823	0.04385	0	0.818863	-15206000	303,529,000.00	74,429,000.00	#####	0.00	930,255,000.00	386,022,000.00	401,228,000.00		201,219,700.00		
	T-3	0.092439	0.185563	0.038792	0	1.472016	96572000	193,860,000.00	40,527,000.00	#####	0.00	483,385,000.00	228,442,000.00	131,870,000.00		200,460,000.00		
	T-4	0.132633	0.148288	0.043637	0	1.646734	147842000	165,292,000.00	48,641,000.00	#####	0.00	540,823,000.00	251,520,000.00	103,678,000.00		199,096,000.00		
	T-5	0.108532	0.138282	0.07387	0	1.659179	128312000	163,484,000.00	87,333,000.00	#####	0.00	610,874,000.00	265,851,000.00	137,539,000.00		198,623,000.00		
	T-6	0.11638	0.161122	0.072494	0	1.77587	139119000	192,602,000.00	86,658,000.00	#####	0.00	700,040,000.00	276,695,000.00	137,576,000.00		179,118,618.00		
	T-7	0.042294	0.219638	0.203611	0	2.361736	41786000	216,999,000.00	201,165,000.00	987,986,000.00	0.00	550,692,000.00	268,375,000.00	226,589,000.00		170,628,333.00		
	T-8	0.221126	0.261697	0.217042	0	3.762242	176985000	209,457,000.00	173,716,000.00	800,380,000.00	0.00	450,010,000.00	360,205,000.00	183,220,000.00		160,906,676.00		
Ross Mining	T-0 1999	-0.126439	0.073396	0.132394	1.149951	1.50697	-26688000	15,492,000.00	27,945,000.00	211,074,000.00	135,012,341.76	117,407,000.00	13,650,000.00	40,338,000.00	\$0.64	210,956,784.00		
	T-1	-0.091114	0.0366	0.041023	2.020101	1.918389	-15203000	6,107,000.00	6,845,000.00	166,856,000.00	158,644,578.40	78,533,000.00	14,953,000.00	30,156,000.00	\$0.77	206,031,920.00		
	T-2	0.262612	0.216626	0.088297	7.568587	10.96931	34013000	28,057,000.00	11,436,000.00	129,518,000.00	176,893,018.00	23,372,000.00	47,768,000.00	13,755,000.00	\$0.89	198,756,200.00		
	T-3	-0.03713	0.314687	0.161193	10.75131	13.1544	-2874000	24,358,000.00	12,477,000.00	77,404,000.00	218,982,588.00	20,368,000.00	11,185,000.00	14,059,000.00	\$1.41	155,306,800.00		
	T-4	-0.062686	0.263528	0.254007	7.244437	9.76146	-3845000	16,164,000.00	15,580,000.00	61,337,000.00	150,140,960.00	20,725,000.00	8,863,000.00	12,708,000.00	\$1.09	137,744,000.00		
	T-5	0.130922	0.200383	0.373397	10.17331	14.70331	5941000	9,093,000.00	16,944,000.00	45,378,000.00	130,035,290.00	12,782,000.00	16,112,000.00	10,171,000.00	\$0.97	134,057,000.00		
	T-6	0.040753	0.030073	0.174349	3.806494	5.53382	1801000	1,329,000.00	7,705,000.00	44,193,000.00	76,697,050.00	20,149,000.00	18,530,000.00	16,729,000.00	\$0.59	129,995,000.00		

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 2 - Z-scores

Company	Period	Company financial data for factor calcs										CA	CL	Share price	No. shares
		X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt			
	T-7	0.006415	-0.451029	0.088846	1.962121	1.228999	67000	-4,711,000.00	928,000.00	10,445,000.00	5,827,500.00	2,970,000.00	2,761,000.00	2,694,000.00	\$0.10 58,275,000.00
Sons of Gwalia	T-0 2003	0.010566	0.112765	0.041203	0.51119	1.250554	14757000	157,500,000.00	57,548,000.00	#####	383,541,532.40	750,292,000.00	140,556,000.00	125,799,000.00	\$2.30 166,757,188.00
	T-1	0.039715	0.107511	0.085491	1.565228	2.829009	50014000	135,389,000.00	107,660,000.00	#####	999,664,006.00	638,670,000.00	169,338,000.00	119,324,000.00	\$6.05 165,233,720.00
	T-2	0.105283	0.136212	0.133807	2.599976	4.763863	78454000	101,501,000.00	99,709,000.00	745,172,000.00	#####	424,543,000.00	160,857,000.00	82,403,000.00	\$9.07 121,698,102.00
	T-3	0.049606	0.125241	0.169139	2.076352	4.050486	27030000	68,243,000.00	92,163,000.00	544,894,000.00	610,794,276.75	294,167,000.00	97,445,000.00	70,415,000.00	\$5.25 116,341,767.00
	T-4	0.037905	0.081655	0.164013	1.826299	3.534635	17323000	37,317,000.00	74,955,000.00	457,007,016.00	453,333,112.16	248,225,000.00	85,450,000.00	68,127,000.00	\$3.98 113,902,792.00
	T-5	0.017781	0.072259	0.187803	1.595007	3.289008	8485000	34,481,000.00	89,617,000.00	477,185,000.00	444,831,584.00	278,890,000.00	107,571,000.00	99,086,000.00	\$4.00 111,207,896.00
	T-6	-0.11766	-0.238243	0.221546	2.157552	2.205693	-43802000	-88,692,000.00	82,476,000.00	372,275,000.00	505,214,568.00	234,161,000.00	52,223,000.00	96,025,000.00	\$4.93 102,477,600.00
	T-7	-0.048948	0.111387	0.111839	6.198214	7.301705	-23061000	52,478,000.00	52,691,000.00	471,132,984.00	918,376,992.00	148,168,000.00	47,295,000.00	70,356,000.00	\$9.00 102,041,888.00
	T-8	-0.108678	0.220498	0.158332	5.321353	6.657309	-21655000	43,936,000.00	31,549,000.00	199,258,000.00	464,080,500.00	87,211,000.00	43,799,000.00	65,454,000.00	\$6.50 71,397,000.00
	T-9	-0.025845	0.238918	0.168443	7.52427	9.641752	-3748000	34,647,000.00	24,427,000.00	145,016,000.00	329,991,900.00	43,857,000.00	32,545,000.00	36,293,000.00	\$9.30 35,483,000.00
Stanilite	T-0 1995	0.243185	0.104134	0.077842		0 2.457867	47136000	20,184,000.00	15,088,000.00	193,828,000.00	0.00	94,329,000.00	99,028,000.00	51,892,000.00	87,121,405.00
	T-1	0.242836	0.129865	0.107211		0 2.736824	28288000	15,128,000.00	12,489,000.00	116,490,000.00	0.00	47,461,000.00	49,449,000.00	21,161,000.00	64,737,202.00
	T-2	0.116531	0.139339	0.130044		0 2.092583	8650000	10,343,000.00	9,653,000.00	74,229,000.00	0.00	40,045,000.00	38,020,000.00	29,370,000.00	25,340,823.00
	T-3	0.288438	0.13798	0.16903		0 3.477849	12875000	6,159,000.00	7,545,000.00	44,637,000.00	0.00	22,133,000.00	28,336,000.00	15,461,000.00	21,963,035.00
Stockford	T-0 2002	0.218773	-1.786199	-0.110266	1.343635	-3.718024	15928000	-130,046,000.00	-8,028,000.00	72,806,000.00	41,866,333.38	31,159,000.00	39,052,000.00	23,124,000.00	\$0.18 232,590,741.00
	T-1	0.139151	-0.033123	0.009275	10.84381	12.25317	25941000	-6,175,000.00	1,729,000.00	186,424,000.00	335,366,557.55	30,927,000.00	48,769,000.00	22,828,000.00	\$1.55 216,365,521.00
	T-2	0.181119	-0.003402	0.118392	#VALUE!	#VALUE!	23801000	-447,000.00	15,558,000.00	131,411,000.00	#VALUE!	10,310,000.00	32,841,000.00	9,040,000.00	\$-- 181,675,104.00
	T-3	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	0	0	10,516,000.00	0	#VALUE!	0	0	0	\$-- 181,675,104.00
Strarch International	T-0 2002	0.16853	-2.158387	0.06333	0.561479	-4.915653	1063704	-13,623,023.00	399,720.00	6,311,669.00	2,861,872.92	5,097,027.00	6,024,891.00	4,961,187.00	\$0.06 47,697,882.00
	T-1	0.031397	-1.545151	0.206318	0.450905	-2.97132	285022	-14,027,084.00	1,872,986.00	9,078,134.00	3,815,830.56	8,462,612.00	8,579,488.00	8,294,466.00	\$0.08 47,697,882.00
	T-2	-0.40504	-4.164081	0.252608	0.386717	-14.12839	-1543770	-15,870,967.00	962,789.00	3,811,397.00	1,907,915.28	4,933,624.00	3,298,624.00	4,842,394.00	\$0.04 47,697,882.00
	T-3	-0.442598	-3.663681	0.255763	0.38851	-12.72038	-2016737	-16,693,890.00	1,165,408.00	4,556,590.00	2,384,894.10	6,138,570.00	4,107,441.00	6,124,178.00	\$0.05 47,697,882.00
	T-4	-1.209313	-6.512025	-0.18169	0.523255	-29.83384	-3303210	-17,787,440.00	-496,282.00	2,731,476.00	2,861,872.80	5,469,365.00	2,139,526.00	5,442,736.00	\$0.06 47,697,880.00
	T-5	-0.422915	-2.768576	0.238885	0.467279	-9.703928	-2630534	-17,220,576.00	1,485,866.00	6,220,013.00	3,815,830.40	8,166,067.00	5,490,872.00	8,121,406.00	\$0.08 47,697,880.00
	T-6	-2.03649	-10.19547	-1.032572	1.168309	-52.30875	-3670402	-18,375,472.00	-1,861,023.00	1,802,318.00	5,723,745.60	4,899,169.00	1,228,767.00	4,899,169.00	\$0.12 47,697,880.00
	T-7	-1.462408	-8.019165	-0.562162	1.649023	-37.78213	-2976000	-16,319,000.00	-1,144,000.00	2,035,000.00	5,723,760.00	3,471,000.00	495,000.00	3,471,000.00	\$0.12 47,698,000.00
	T-8	-0.675559	-5.936446	-0.308356	2.720418	-23.00019	-1722000	-15,132,000.00	-786,000.00	2,549,000.00	7,154,700.00	2,630,000.00	898,000.00	2,620,000.00	\$0.15 47,698,000.00
	T-9	-0.2042	-2.669417	0.086443	2.624807	-6.704909	-1089000	-14,236,000.00	461,000.00	5,333,000.00	11,924,500.00	4,543,000.00	3,425,000.00	4,514,000.00	\$0.25 47,698,000.00
Target Resources	T-0 1996	0.216397	-1.338298	-0.151786		0 -3.963289	1277472	-7,900,483.00	-896,048.00	5,903,380.00	0.00	432,706.00	1,710,178.00	432,706.00	266,920,016.00
	T-1	-0.103347	-3.561362	-0.317087		0 -14.41883	-176000	-6,065,000.00	-540,000.00	1,703,000.00	0.00	579,000.00	403,000.00	579,000.00	85,724,000.00
	T-2	0.033859	-1.952674	-0.46287		0 -9.25409	88000	-5,075,000.00	-1,203,000.00	2,599,000.00	0.00	641,000.00	729,000.00	641,000.00	77,929,000.00
	T-3	-0.017217	-5.549498	-0.954089		0 -24.61578	-12000	-3,868,000.00	-665,000.00	697,000.00	0.00	264,000.00	252,000.00	264,000.00	42,246,000.00
	T-4	0.033493	-15.32057	-3.358852		0 -72.29684	7000	-3,202,000.00	-702,000.00	209,000.00	0.00	168,000.00	175,000.00	168,000.00	14,414,000.00
Woolstock Australia	T-0 2001	0.979414	0.978421	0.185726	44.46686	57.55289	343938000	343,589,000.00	65,221,000.00	351,167,000.00	321,450,925.60	7,229,000.00	351,167,000.00	7,229,000.00	\$0.92 349,403,180.00
	T-1	0.874882	0	0.021326		0 5.88254	485473000		0	11,834,000.00	554,901,000.00	0.00	135,331,000.00	553,948,000.00	68,475,000.00 349,403,180.00

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow	CFFO/TCI	CFFO/CL	Gearing	LC/SC	O/trading	Company financial data for factor calcs												Inv	NC
		CFFO/TD			TL/TA		(FA+I)/NC	CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets					
Aerosonde	T-0 2001	-0.61654103	-0.888655587	-0.61654103	0.899849777	0.098095101	11.38885494	-930673	1,509,507	1047282	1,509,507	1,509,507	1,677,510	1,000,000	10,194,189	1,677,510	0	147294			
	T-1	-26.7920538	-0.501796884	-26.7920538	0.007855294	0	2.533773379	-1043872	38,962	2080268	38962	38,962	4959967	0	10194189	3532711	0	1394249			
	T-2	-23.62927003	-0.540499215	-23.62927003	0.008569599	0	8.158113521	-929670	39344	1720021	39,344	39344	4597895	0	8339280	4095838	0	502057			
	T-3	-9.693895575	-0.413756171	-9.693895575	0.012511444	0	10.51675047	-823225	84922	1989638	84922	84922	6787546	0	4010001	6088557	0	578939			
	T-4	-2.792057154	-0.164227444	-2.792057154	0.041299374	0	5.161969068	-743321	266227	4526168	266,227	266227	6446272	0	3332000	4960771	0	961023			
Alamain	T-0 2003	0.002881084	0.029112352	0.00474638	0.661335813	0.267817775	21.4375516	27,262.00	9,462,410	936441	5,743,746	9,462,410	14,308,026	3,718,664	13,885,053	5,353,464	1,320,153	311,305			
	T-1	-0.086750095	-0.228956043	-0.120929247	0.588705812	0.173611941	15.13507429	-739,890.00	8,528,982	3231581	6,118,371	8,528,982	14,487,681	2,410,611	13,885,053	5570557	70376	372,706			
	T-2	0.020520231	0.087471266	0.024547225	0.532373935	0.132375224	3.322216432	229,910.00	11,204,065	2628406	9,366,028	11,204,065	21,045,480	1,838,037	13,885,053	10264785	0	3,089,740			
	T-3	-0.035335525	-0.090063772	-0.04158611	0.61410083	0.12191131	5.741639534	-397,952.00	11,262,094	4418558	9,569,349	11,262,094	18,339,161	1,692,745	13,885,053	9326725	0	1,624,401			
	T-4	-0.073867045	-0.076308013	-0.141327113	0.615520953	0.38643259	5.277204319	-830,330.00	11,240,872	10881295	5,875,235	11,240,872	18,262,371	5,365,637	13,885,053	9173264	0	1,738,281			
	T-5	-0.037929172	-0.065058217	-0.061108121	0.640506963	0.338715368	6.933764213	-469,944.00	12,390,041	7223438	7,690,369	12,390,041	19,344,116	4,699,672	13,874,989	10670134	0	1,538,866			
	T-6	0.04463599	0.110903182	0.142514135	0.587302156	0.38380362	14.15555386	346,098.00	7,753,788	3120722	2,428,517	7,753,788	13,202,383	5,325,271	13,874,989	9100280	0	642,877			
	T-7	-0.158102089	-0.275510274	-0.840765673	0.531518058	0.342691299	8.760607286	-925,852.00	5,856,039	3360499	1,101,201	5,856,039	11,017,573	4,754,838	13,874,989	8169643	0	932,543			
	T-8	-6.038834951	-1.164794007	-6.038834951	0.14325452	0	0.542125	-622,000.00	103,000	534000	103,000	103,000	719,000	0	6,588,000	4337	0	8,000			
	T-9	-5.605769231	-0.257964602	-5.605769231	0.078254327	0	0.017238208	-583,000.00	104,000	2260000	104,000	104,000	1,329,000	0	6,588,000	7309	0	424,000			
Australian Goldfields	T-0 1997	-0.159165189	-0.113155646	-0.295655015	0.585031039	1.60729671	0.304240224	-10,860,000.00	68,231,000	95974000	36,732,000	68,231,000	116,628,000	42,161,000	26,231,000	4,301,000	3,075,000	24,244,000			
	T-1	-0.158437551	-0.080646495	-0.158437551	0.425677544	0.209870103	0.447469536	-1,951,000.00	12,314,000	24192000	12,314,000	12,314,000	28,928,000	4,023,000	19,169,000	2,405,000	1,671,000	9,109,000			
	T-2	-0.904761905	-0.95	-0.904761905	2.368421053	0	3.5	-285,000.00	315,000	300,000	315,000	315,000	133,000	0	22,529,000	14,000	0	4,000			
	T-3	-0.803370787	-0.101131542	-0.803370787	6.209302326	0.024090909	15	-429,000.00	534,000	4242000	534,000	534,000	86,000	530,000	22,000,000	15,000	0	1,000			
	T-4	0.079009995	0.053896104	0.163546798	3.758497317	0.068738318	6.342857143	166,000.00	2,101,000	3080000	1,015,000	2,101,000	559,000	1,471,000	21,400,000	18,000	204,000	35,000			
	T-5	0.280795344	0.15172956	0.57957958	0.825460368	0.078457944	7.538461538	579,000.00	2,062,000	3816000	999,000	2,062,000	2,498,000	1,679,000	21,400,000	11,000	185,000	26,000			
Australian Kaolin	T-0 1998	-0.118227262	-0.083711927	-0.374423341	0.214699013	0.255879579	3.464002515	-2,065,579.00	17,471,258.00	24674847	5,516,694.00	17,471,258.00	81,375,586.00	12071635	47,177,016.00	52,264,671.00	119,229.00	15,122,362.00			
	T-1	-0.583540314	-0.016159188	-0.59631431	0.021121237	0	0.086417203	-681,564.00	1,167,981.00	42178109	1,142,961.00	1,167,981.00	55,298,892.00	0	39,265,608.00	3,461,533.00	0	40,056,064.00			
	T-2	-1.337367893	-0.630079844	-23.6018113	0.07941454	0	5.204186511	-1,503,695.00	1,124,369.00	2386515	63,711.00	1,124,369.00	14,158,226.00	0	9,835,606.00	2,170,177.00	0	417,006.00			
	T-3	-0.698183512	-5.151202749	-1.576235542	0.14902478	0	4.184261036	-1,499,000.00	2,147,000.00	291000	951,000.00	2,147,000.00	14,407,000.00	0	9,234,000.00	2,180,000.00	0	521,000.00			
	T-4	-2.454943132	-0.60467622	-7.04140527	0.147865459	0	0.272992275	-5,612,000.00	2,286,000.00	9281000	797,000.00	2,286,000.00	15,460,000.00	0	9,234,000.00	1,873,000.00	0	6,861,000.00			
	T-5	0.79152611	0.665154779	0.855102041	0.5677622	0	0.007980435	5,866,000.00	7,411,000.00	8819000	6,860,000.00	7,411,000.00	13,053,000.00	0	7,034,000.00	62,000.00	0	7,769,000.00			
	T-6	-0.112012987	-0.696969697	-0.112012987	0.137071651	0.023488562	4542	-69,000.00	616,000.00	99000	616,000.00	616,000.00	4,494,000.00	115000	4,896,000.00	4,542,000.00	0	1,000.00			
Australian Plantation T	T-0 2004	-0.010859684	-0.016216216	-0.013298877	0.772183156	0.049622036	0.006825405	-669,000.00	61,604,000.00	41255000	50,305,000.00	61,604,000.00	79,779,000.00	7,851,000.00	158,216,000.00	131,000.00	0	19,193,000.00			
	T-1	-0.272156452	-0.477836472	-0.302706242	0.473416938	0	0.015805985	-4,161,000.00	15,289,000.00	8708000	13,746,000.00	15,289,000.00	32,295,000.00	0	158,216,000.00	131,000.00	0	8,288,000.00			
	T-2	-2.721449038	-2.392837862	-3.056430295	0.355332533	0	0.011648586	-26,594,000.00	9,772,000.00	11,114,000	8,701,000.00	9,772,000.00	27,501,000.00	0	158,216,000.00	131,000.00	0	11,246,000.00			
	T-3	-0.257756563	-0.143071188	-0.257756563	1.337479362	0	0.042684979	-15,660,000.00	60,755,000.00	109456000	60,755,000.00	60,755,000.00	45,425,000.00	0	155,666,000.00	368,000.00	900,000.00	29,706,000.00			
	T-4	0.113258065	0.07288068	0.167172565	0.39598775	0.203397371	5.214646877	14,044,000.00	124,000,000.00	192679000	84,009,000.00	#####	313,141,000.00	29,719,000.00	146,113,000.00	189,733,000.00	2,093,000.00	36,786,000.00			
	T-5	0	#DIV/0!	0	0.480452752	0.345752952	#DIV/0!	0.00	147,462,000.00	0	117,200,000.00	#####	306,923,000.00	22,457,000	64,951,000.00	111,391,000.00	3,021,000.00	0			
Australian Resources	T-0 1998	0.412294468	0.199583908	1.079256731	0.402194654	0.366960627	39.84267913	34,152,000.00	82,834,000.00	171116000	31,644,000.00	82,834,000.00	205,955,000.00	16,478,000.00	44,904,000.00	81,216,000.00	21,100,000.00	2,568,000.00			
	T-1	0.464388112	0.245762145	1.211952401	0.39843691	0.416332621	9.189107085	36,767,000.00	79,173,000.00	149604000	30,337,000.00	79,173,000.00	198,709,000.00	18,695,000.00	44,904,000.00	79,308,000.00	5,388,000.00	9,217,000.00			
	T-2	0.808218985	0.308652868	2.77466628	0.332566518	0.467931587	5.615143674	57,369,000.00	70,982,000.00	185,869,000	20,676,000.00	70,982,000.00	213,437,000.00	21,012,000.00	44,904,000.00	76,480,000.00	5,984,000.00	14,686,000.00			
	T-3	0.753629797	0.287512613	1.917262181	0.290852759	0.357206485	12.86024628	41,317,000.00	54,824,000.00	143705000	21,550,000.00	54,824,000.00	188,494,000.00	16,040,000.00	44,904,000.00	60,625,000.00	6,083,000.00	5,441,000.00			
	T-4	1.041508527	0.279140201	1.418985002	0.321660977	0.431290726	1.81982217	60,646,000.00	58,229,000.00	217260000	42,739,000.00	58,229,000.00	181,026,000.00	19,327,000.00	44,812,000.00	72,071,000.00	4,680,000.00	42,175,000.00			
	T-5	0.355512615	0.133677279	0.712896622	0.675560956	4.528956996	13.91862042	29,253,000.00	82,284,000.00	218833000	41,034,000.00	82,284,000.00	121,801,000.00	65,611,000.00	14,487,000.00	66,644,000.00	5,190,000.00	5,161,000.00			
Australian Topmaking T	T-0 2000	0.341129744	0.156488292	0.840521928	0.144318954	0.164936127	52.54265873	2,319,000.00	6,798,000.00	14819000	2,759,000.00	6,									

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow	CFFO/TCI	CFFO/CL	Gearing	LC/SC	O/trading	Company financial data for factor calcs											Inv	NC
		CFFO/TD			TL/TA		(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA				
	T-7	-0.018251767	-0.008679004	-0.018251767	0.283918002	0.003513426	0.459219005	-204,000.00	11,177,000.00	23505000	11,177,000.00	11,177,000.00	39,367,000.00	98,000.00	27,893,000.00	9,549,000.00	0.00	20,794,000.00		
	T-8	0.08935611	0.151111111	0.08935611	0.184100418	0.192697769	2.352941176	68,000.00	761,000.00	450000	761,000.00	761,000.00	239,000.00	475,000.00	2,465,000.00	115,000.00	5,000.00	51,000.00		
Barrack Mines	T-0 1991	0	#DIV/0!	0	7.133049242	1.749368246	1.650387597		180,780,000.00		180,780,000.00	#####	25,344,000.00	65,073,000.00	37,198,000.00	1,629,000.00	500,000.00	1,290,000.00		
	T-1	0	#DIV/0!	0	1.039926772	7.837491263	29.4461348		364,121,000.00		128,276,000.00	#####	350,141,000.00	291,539,000.00	37,198,000.00	148,686,000.00	17,773,000.00	5,653,000.00		
Carlovers Carwash	T-0 2002	0.266942541	0.076581004	0.442931112	0.702956605	0.282278374	24.65226554	7,870,000.00	29,482,000.00	102767000	17,768,000.00	29,482,000.00	41,940,000.00	9,976,000.00	35,341,000.00	45,399,000.00	1,391,000.00	1,898,000.00		
	T-1	0.248589098	0.090303097	0.365152643	0.607194156	0.329362497	19.95889812	7,356,000.00	29,591,000.00	81459000	20,145,000.00	29,591,000.00	48,734,000.00	11,640,000.00	35,341,000.00	44,097,000.00	1,549,000.00	2,287,000.00		
	T-2	0.295552043	0.199481865	0.43315685	0.427262203	0.263506019	90.95366795	2,618,000.00	8,858,000.00	13124000	6,044,000.00	8,858,000.00	20,732,000.00	6,414,000.00	24,341,000.00	22,723,000.00	834,000.00	259,000.00		
	T-3	0.14201838	0.086499093	0.299425906	0.501130016	0.391356148	173.0296296	1,669,000.00	11,752,000.00	19295000	5,574,000.00	11,752,000.00	23,451,000.00	9,526,000.00	24,341,000.00	22,004,000.00	1,355,000.00	135,000.00		
	T-4	-0.017469493	-0.012296008	-0.030128489	0.604707162	1.061606977	375.5079365	-272,000.00	15,570,000.00	22121000	9,028,000.00	15,570,000.00	25,748,000.00	11,442,000.00	10,778,000.00	22,149,000.00	1,508,000.00	63,000.00		
	T-5	0.192139738	0.084153376	0.576378618	0.391355881	0.966969753	244.8240741	2,728,000.00	14,198,000.00	32417000	4,733,000.00	14,198,000.00	36,279,000.00	10,422,000.00	10,778,000.00	25,128,000.00	1,313,000.00	108,000.00		
	T-6	0.223845975	0.157044632	0.407301889	0.587109734	2.237372867	-5.77221172	3,860,000.00	17,244,000.00	24579000	9,477,000.00	17,244,000.00	29,371,000.00	12,979,000.00	5,801,000.00	17,092,000.00	1,229,000.00	-3,174,000.00		
	T-7	0.200064641	0.090589785	0.256367778	0.346841545	0.577563541	-6.298153034	1,238,000.00	6,188,000.00	13666000	4,829,000.00	6,188,000.00	17,841,000.00	3,295,000.00	5,705,000.00	4,185,000.00	589,000.00	-758,000.00		
	T-8	0.215496368	0.031064572	0.245179063	0.133801296	0.017096019	2.791803279	267,000.00	1,239,000.00	8595000	1,089,000.00	1,239,000.00	9,260,000.00	73,000.00	4,270,000.00	1,319,000.00	384,000.00	610,000.00		
Centaur Mining	T-0 2000	0.011537621	0.026162264	0.081151407	0.811462002	0.971638812	7.92505202	5,489,000.00	475,748,000.00	209806000	67,639,000.00	#####	586,285,000.00	377,779,000.00	388,806,000.00	384,613,000.00	19,105,000.00	50,942,000.00		
	T-1	0.093985924	0.167796703	0.872595959	0.753211484	0.950649143	4.313698305	43,012,000.00	457,643,000.00	256334000	49,292,000.00	#####	607,588,984.00	369,716,000.00	388,908,992.00	375,654,984.00	18,919,000.00	91,470,000.00		
	T-2	0.044073395	0.102387738	0.276473262	0.606539365	3.908071661	2.358975726	18,250,000.00	414,082,008.00	178244000	66,010,000.00	#####	682,696,016.00	344,008,008.00	88,025,000.00	330,724,016.00	6,685,000.00	143,032,000.00		
	T-3	0.186316553	0.053018178	0.237042011	0.223039739	0.019893783	2.213814004	11,296,000.00	60,628,000.00	213059000	47,654,000.00	60,628,000.00	271,826,000.00	1,592,000.00	80,025,000.00	90,559,000.00	7,327,000.00	44,216,000.00		
	T-4	0.050232685	0.008773188	0.057795276	0.268123211	0.039406482	1.332300497	1,101,000.00	21,918,000.00	125496000	19,050,000.00	21,918,000.00	81,746,000.00	2,523,000.00	64,025,000.00	21,017,000.00	1,772,000.00	17,105,000.00		
	T-5	-0.020909253	-0.03907645	-0.065625218	3.274685294	1.095170826	4.4375	-941,000.00	45,004,000.00	24081000	14,339,000.00	45,004,000.00	13,743,000.00	41,864,000.00	38,226,000.00	213,000.00	0	48,000.00		
	T-6	0.07449849	0.15052299	0.234769309	3.241108101	0.854226108	5.254480287	2,763,000.00	37,088,000.00	18356000	11,769,000.00	37,088,000.00	11,443,000.00	32,634,000.00	38,203,000.00	278,000.00	1,188,000.00	279,000.00		
	T-7	0.011661748	0.041221429	0.218091223	8.572030921	2.663374604	19.70731707	1,138,000.00	97,584,000.00	27607000	5,218,000.00	97,584,000.00	11,384,000.00	92,499,000.00	34,730,000.00	277,000.00	1,339,000.00	82,000.00		
	T-8	-0.020147968	-0.048661086	-0.099360256	5.744643689	2.754045494	4.357487923	-1,988,000.00	98,670,000.00	40854000	20,008,000.00	98,670,000.00	17,176,000.00	95,648,000.00	34,730,000.00	271,000.00	631,000.00	207,000.00		
	T-9	0.200173345	0.364010245	0.200425774	2.11888433	2.27348507	14.23809524	14,781,000.00	73,841,000.00	40606000	73,748,000.00	73,841,000.00	34,849,000.00	69,821,000.00	30,711,000.00	294,000.00	304,000.00	42,000.00		
Central Norseman Goli	T-0 2001	0.318120443	0.203614079	0.453171994	0.69245546	0	13.68342454	12,958,000.00	40,733,000.00	63640000	28,594,000.00	40,733,000.00	58,824,000.00	0.00	5,200,000.00	144,901,000.00	2,620,000.00	10,781,000.00		
	T-1	0.314674401	0.305542375	0.458085687	0.822927342	0	5.903308389	19,962,000.00	63,437,000.00	65333000	43,577,000.00	63,437,000.00	77,087,000.00	0.00	5,200,000.00	57,127,000.00	2,827,000.00	10,156,000.00		
	T-2	0.233640346	0.227763392	0.382558107	0.862305908	0	2.64503386	13,546,000.00	57,978,000.00	59474000	35,409,000.00	57,978,000.00	67,236,000.00	0.00	5,200,000.00	20,016,000.00	3,419,000.00	8,860,000.00		
	T-3	0.808158062	0.411360139	1.135764555	0.884456184	0	1.436031691	44,380,000.00	54,915,000.00	107886000	39,075,000.00	54,915,000.00	62,089,000.00	0.00	5,200,000.00	17,292,000.00	3,552,000.00	14,515,000.00		
	T-4	0.49704482	0.366071159	1.215070486	0.543881776	0	1.972623598	24,220,000.00	48,728,000.00	66162000	19,933,000.00	48,728,000.00	89,953,000.00	0.00	20,800,000.00	57,151,000.00	6,330,000.00	32,181,000.00		
	T-5	0.745791625	0.351139601	1.191985184	0.419511207	0	0.947309459	23,171,000.00	31,069,000.00	65988000	19,439,000.00	31,069,000.00	74,060,000.00	0.00	20,800,000.00	19,934,000.00	5,434,000.00	26,779,000.00		
	T-6	0.551742499	0.293740787	0.599600729	0.460989948	0.013269231	0.685	20,724,000.00	37,561,000.00	70552000	34,563,000.00	37,561,000.00	81,479,000.00	276,000.00	20,800,000.00	22,924,000.00	5,024,000.00	40,800,000.00		
	T-7	1.018600708	0.432772575	1.237114651	0.275286915	0	1.106017309	20,426,000.00	20,053,000.00	47198000	16,511,000.00	20,053,000.00	72,844,000.00	0.00	20,800,000.00	22,656,000.00	4,437,000.00	24,496,000.00		
	T-8	1.241394775	0.240580592	1.392179052	0.153712257	0.000865385	1.127446441	11,072,000.00	8,919,000.00	46022000	7,953,000.00	8,919,000.00	58,024,000.00	18,000.00	20,800,000.00	23,285,000.00	3,502,000.00	23,759,000.00		
	T-9	1.218557396	0.475606089	1.669106978	0.29536081	0.005625	2.019569472	25,307,000.00	20,768,000.00	53210000	15,162,000.00	20,768,000.00	70,314,000.00	117,000.00	20,800,000.00	32,717,000.00	6,499,000.00	19,418,000.00		
Chameleon Mining	T-0 1994	-1.71059331	-0.102241361	-9.934198862	0.066613506	0	201.9911558	-694,778.00	406,162.00	6795469	69,938.00	406,162.00	6,097,292.00	0.00	10,610,884.00	5,960,961.00	0.00	29,511.00		
	T-1	-0.012785218	-0.019051228	-0.012785218	0.257917628	0	14.89560037	-15,335.00	1,199,432.00	804935	1,199,432.00	1,199,432.00	4,650,446.00	0.00	3,936,113.00	4,307,897.00	0.00	289,206.00		
Child Care Centres	T-0 2004	0.017470428	0.005226267	0.018097841	0.210703912	0.187705228	0.192403322	384,000.00	21,980,000.00	#####	21,218,000.00	21,980,000.00	104,317,000.00	15,377,000.00	81,921,000.00	3,637,000.00	0.00	18,903,000.00		
	T-1	0.082932146	0.033336376	0.275165763	0.465654344	0.720921016	0.288286154	1,826												

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
	T-1	-0.147900615	-0.055736388	-0.2838454	0.456639663	0.731338656	6.914863258	-6,661,000.00	45,037,000.00	1195093000	23,467,000.00	45,037,000.00	98,627,000.00	18,870,000.00	25,802,000.00	36,661,000.00	21,493,000.00	8,410,000.00
	T-2	0.21890666	-0.29512133	0.230517848	0.32718894	0.256691166	-1921666667	2,751,000.00	12,567,000.00	9437000	11,934,000.00	12,567,000.00	38,409,000.00	3,702,000.00	14,422,000.00	19,413,000.00	5,953,000.00	-1,320,000.00
	T-3	1.947343677	0.626531538	1.974261201	0.11726115	0.002526493	8.934755332	4,142,000.00	2,127,000.00	6611000	2,098,000.00	2,127,000.00	18,139,000.00	36,000.00	14,249,000.00	14,242,000.00	0.00	1,594,000.00
	T-4	-0.144680851	-0.33333333	-0.144680851	7.966101695	0	28	-68,000.00	470,000.00	150000	470,000.00	470,000.00	59,000.00	0.00	3,545,000.00	56,000.00	0.00	2,000.00
	T-5	-0.217125382	-0.689320388	-0.217125382	7.604651163	0	19	-71,000.00	327,000.00	103000	327,000.00	327,000.00	43,000.00	0.00	3,545,000.00	38,000.00	0.00	2000
	T-6	-0.701657459	-0.725714286	-0.701657459	2.873015873	0	28	-127,000.00	181,000.00	175000	181,000.00	181,000.00	63,000.00	0.00	3,520,000.00	51,000.00	5,000.00	2000
Coplex	T-0 1998	-1.122604615	-0.044167654	-1.123263549	0.047110194	0.000107446	0.190558797	-5,741,000.00	5,114,000.00	129982000	5,111,000.00	5,114,000.00	108,554,000.00	8,000.00	74,456,000.00	2,841,000.00	784,000.00	19,023,000.00
	T-1	-0.02595245	-0.027690494	-0.031123447	0.399564365	0.971849321	0.063784982	-1,393,825.00	53,706,876.00	50335866	44,782,465.00	53,706,876.00	134,413,578.00	34,367,250.00	35,362,735.00	82,919,592.00	718,182.00	3,548,808.00
	T-2	-0.138916404	-0.7031906	-0.138916404	0.183762372	0.225645626	0.063853165	-2,508,945.00	18,060,826.00	34279607	18,060,826.00	18,060,826.00	98,283,592.00	7,714,314.00	34,187,740.00	615,702.00	406,975.00	16,020,590.00
	T-3	-0.170943196	-0.157465768	-0.252461016	0.265750161	0.14317031	0.204848911	-2,898,000.00	16,953,000.00	18404000	11,479,000.00	16,953,000.00	68,293,000.00	4,637,000.00	32,388,000.00	767,000.00	399,000.00	5,692,000.00
	T-4	-0.215209435	-0.338493028	-0.445229682	0.210924499	0.071017129	0.352040816	-2,646,000.00	12,295,000.00	7817000	5,943,000.00	12,295,000.00	53,791,000.00	1,874,000.00	26,388,000.00	1,063,000.00	182,000.00	196,000.00
	T-5	-0.136254707	-0.093230265	-0.459372114	0.214190388	0.006148793	0.798767223	-1,990,000.00	14,605,000.00	21345000	4,332,000.00	14,605,000.00	68,187,000.00	161,000.00	26,184,000.00	1,646,000.00	557,000.00	2,758,000.00
	T-6	-0.08846185	-0.054394974	-0.089521212	0.281806965	0.010997941	0.481146829	-1,091,000.00	12,333,000.00	20057000	12,187,000.00	12,333,000.00	43,764,000.00	203,000.00	18,458,000.00	2,175,000.00	594,000.00	5,755,000.00
Cudgen Rz	T-0 1997	0.102597403	0.051728098	0.161623256	0.896609256	3.801091405	6.764137724	10,586,000.00	103,180,000.00	204647000	65,498,000.00	#####	115,078,000.00	27,862,000.00	7,330,000.00	114,833,000.00	20,328,000.00	19,982,000.00
	T-1	0.093843975	0.056715053	0.189455956	0.257590066	2.067667121	2.190794329	4,837,000.00	51,543,000.00	85286000	25,531,000.00	51,543,000.00	200,097,000.00	15,156,000.00	7,330,000.00	41,336,000.00	15,066,000.00	25,745,000.00
	T-2	0.602793557	0.318481288	1.042737919	0.278288174	1.695907231	1.786086957	30,986,000.00	51,404,000.00	97293000	29,716,000.00	51,404,000.00	184,715,000.00	12,431,000.00	7,330,000.00	39,170,000.00	10,126,000.00	27,600,000.00
	T-3	-0.028526604	-0.10386191	-0.051906005	0.307095266	1.915886545	8.040783558	-1,491,000.00	52,267,000.00	143556000	28,725,000.00	52,267,000.00	170,198,000.00	13,712,000.00	7,157,000.00	37,904,000.00	12,174,000.00	6,228,000.00
	T-4	0.047939804	0.234126582	0.67920094	0.236843525	0	1.135931267	16,184,000.00	35,122,000.00	69125000	23,828,000.00	35,122,000.00	148,292,000.00	0.00	6,250,000.00	41,148,000.00	10,680,000.00	45,626,000.00
	T-5	0.590049054	0.255148541	0.890751516	0.261821928	0	1.770455324	21,892,000.00	37,102,000.00	85801000	24,577,000.00	37,102,000.00	141,707,000.00	0.00	6,250,000.00	45,354,000.00	16,704,000.00	35,052,000.00
	T-6	0.156486997	0.07309605	0.223953355	0.298317109	0	1.618682077	6,541,000.00	41,799,000.00	89485000	29,254,000.00	41,799,000.00	140,116,000.00	0.00	6,250,000.00	50,207,000.00	24,861,000.00	46,376,000.00
	T-7	1.361269704	0.943210798	1.743509555	0.380183341	0	1.263500836	75,820,000.00	55,698,000.00	80385000	43,487,000.00	55,698,000.00	146,503,000.00	0.00	6,250,000.00	53,074,000.00	21,000,000.00	58,626,000.00
	T-8	1.531196984	0.954785879	1.992504974	0.392765772	0	1.639838875	73,107,000.00	47,745,000.00	76569000	36,691,000.00	47,745,000.00	121,561,000.00	0.00	6,250,000.00	51,926,000.00	16,838,000.00	35,339,000.00
Denehurst	T-0 1997	0.333026191	0.166820521	0.766664524	1.075075796	0.638840417	33.73698745	11,927,000.00	35,814,000.00	71496000	15,557,000.00	35,814,000.00	33,313,000.00	11,349,000.00	17,765,000.00	77,243,000.00	2,528,000.00	239,000.00
	T-1	-0.037326983	-0.184247362	-0.065732312	0.70732186	2.415085843	76.27094972	-2,542,000.00	78,634,000.00	178089000	38,672,000.00	78,634,000.00	111,107,000.00	42,904,000.00	17,765,000.00	74,806,000.00	7,109,000.00	1,074,000.00
	T-2	0.168520568	0.136673148	0.333826838	0.584011201	0.888599614	26.71252668	17,362,000.00	103,026,000.00	127033000	52,009,000.00	#####	176,411,000.00	63,143,000.00	71,059,000.00	154,908,000.00	7,798,000.00	6,091,000.00
	T-3	0.106269495	0.05949546	0.288004099	0.477272874	0.789147264	4.87377262	7,870,000.00	74,057,000.00	132279000	27,326,000.00	74,057,000.00	155,167,000.00	53,314,000.00	67,559,000.00	112,451,000.00	7,668,000.00	24,646,000.00
	T-4	0.336934876	0.05580407	0.262403903	0.444067627	0.661030423	15.31613569	8,499,000.00	62,066,000.00	152299000	32,389,000.00	62,066,000.00	139,767,000.00	43,238,000.00	65,410,000.00	108,202,000.00	10,544,000.00	7,753,000.00
	T-5	0.189099459	0.109899301	0.306114917	0.459542814	0.660938694	-42.02621128	13,271,000.00	70,180,000.00	120756000	43,353,000.00	70,180,000.00	152,717,000.00	43,232,000.00	65,410,000.00	92,303,000.00	13,519,000.00	-2,518,000.00
	T-6	0	#DIV/0!	0	0.458290387	0	#DIV/0!	66,695,000.00	66,695,000.00	145,530,000.00	35,785,000.00	66,695,000.00	152,717,000.00	43,232,000.00	65,410,000.00	91,827,000.00	13,941,000.00	
	T-7	0	#DIV/0!	0	0.462165368	0	#DIV/0!	63,514,000.00	63,514,000.00	137,427,000.00	48,365,000.00	63,514,000.00	137,427,000.00	43,232,000.00	65,410,000.00	74,070,000.00	9,933,000.00	
	T-8	0	#DIV/0!	0	0.552861107	0	#DIV/0!	69,535,000.00	69,535,000.00	158,000.00	51,800,000.00	69,535,000.00	125,773,000.00	43,232,000.00	65,410,000.00	60,046,000.00	6,199,000.00	
Ectec	T-0 1999	0.006238617	0.002168993	0.00898237	0.589079869	1.02529747	-13.70827721	161,000.00	25,807,000.00	74228000	17,924,000.00	25,807,000.00	43,809,000.00	10,254,000.00	10,001,000.00	23,951,000.00	6,687,000.00	-2,235,000.00
	T-1	0.039162671	0.015039767	0.069671725	0.639111355	0.929863344	225.72535521	1,405,000.00	35,876,000.00	93419000	20,166,000.00	35,876,000.00	56,134,000.00	9,254,000.00	9,952,000.00	20,914,000.00	11,139,000.00	142,000.00
	T-2	-0.056732496	-0.018052699	-0.087654163	0.649451988	1.380594817	-28.74550898	-2,054,000.00	36,205,000.00	113778000	23,433,000.00	36,205,000.00	55,747,000.00	9,377,000.00	6,792,000.00	20,247,000.00	8,556,000.00	-1,002,000.00
	T-3	0.078281212	0.023547276	0.097683090	0.694544211	0.849455955	9.863919129	3,179,000.00	40,610,000.00	135005000	28,961,000.00	40,610,000.00	58,470,000.00	5,699,000.00	6,709,000.00	15,961,000.00	9,409,000.00	2,572,000.00
	T-4	0.098979258	0.034508088	0.145235565	0.743760508	1.025444703	3.921636475	4,510,000.00	45,565,000.00	130694000	31,053,000.00	45,565,000.00	61,263,000.00	6,825,000.00	6,655,000.00	14,717,000.00	4,550,000.00	4,913,000.00
	T-5	0.100214467	0.032334388	0.132811635	0.735009315	1.154624942	3.70367893	3,598,000.00	35,903,000.00	111273000	27,091,000.00	35,903,000.00	48,847,000.00	7,527,000.00	6,519,000.00	12,935,000.00	3,676,000.00	4,485,000.00
	T-6	0.262165328	0.078304558	0.381893861	0.746156962	1.449755419	3.216246127	9,175,000.00	34,997,000.00	117171000	24,025,000.00	34,997,000.00	46,903,000.00	9,435,000.00	6,508,000.00	12,724,000.00	1,807,000.00	4,518,000.00
	T-7	0.012770258	0.005430748	0.023536716	0.753663997	1.7914874	-10.88425926	417,000.00	32,654,000.00	76785000	17,717,000.00	32,654,000.00	43,327,000.00	11,659,000.00	6,508,000.00	10,041,000.00	4,065,000.00	-1,296,000.00
Farnell & Thomas	T-0 1999	-0.129609302	-0.046808011	-0.149034641	0.574535177	0.370286874	63.74423963	-3,188,000.00	24,597,000.00	68108000	21,391,000.00	24,597,000.00	42,812,000.00	6,570,000.00	17,743,000.00	16,733,000.00	10,932,000.00	434,000.00
	T-1	-0.121551159	-0.171064781	-0.129276779	0.615546486	0.332469143	-21.09767025	-3,520,000.00	28,959,000.00	20577000	27,224,000.00	28,959,000.00	47,046,000.00	5,899,000.00	17,743,000.00	14,323,000.00	9,222,000.00	-1,116,000.00
	T-2	0.090529248	0.025488614	0.099974366	0.503741815	0.891410049	-11.7010582	390,000.00	4,308,000.00	15861000	3,901,000.00	4,308,000.00	8,552,000.00	1,650,000.00	1,851,000.00	6,569,000.00	2,277,000.00	-756,000.00
	T-3	0.12128287	0.039427955	0.138448855	0.573219694	1.560711524	-20.80105564	987,000.00	8,138,									

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash	
Federation Group	T-0 2003	-0.374038663	-0.207155884	-0.374038663	0.501480479	0.02830378	-17.83509212	-984,377.00	2,631,752.00	4751866	2,631,752.00	2,631,752.00	5,247,965.00	1,632,081.00	57,663,005.00	4,552,426.00	528,007.00	-284,856.00	
	T-1	-2.150130751	-0.507934771	-2.150130751	0.119755428	0.018856923	-7.599448961	-6,066,281.00	1,677,238.00	7099890	1,677,238.00	1,677,238.00	14,005,528.00	1,033,082.00	54,785,291.00	2,169,049.00	123,036.00	-301,612.00	
	T-2	-2.644454278	-0.867011941	-2.644454278	0.085610931	0.007268475	-15.15091352	-2,067,794.00	781,936.00	2384966	781,936.00	781,936.00	9,133,600.00	313,119.00	43,100,399.00	3,747,706.00	396,084.00	-273,501.00	
	T-3	-3.151268763	-0.733516798	-3.151268763	0.132319398	0.003319049	-12.36824863	-2,004,125.00	635,974.00	2732807	635,974.00	635,974.00	4,806,355.00	110,816.00	33,387,880.00	728,663.00	0.00	58,914.00	
	T-4	-0.433646653	-0.579714529	-0.433646653	0.281391878	0.002915438	-3.514402644	-383,240.00	883,761.00	661084	883,761.00	883,761.00	3,140,677.00	89,481.00	30,692,128.00	312,578.00	0.00	-88,942.00	
	T-5	-0.556919608	-0.293160154	-0.556919608	0.174505002	0.001119377	-15.08146057	-334,883.00	601,313.00	1142321	601,313.00	601,313.00	3,445,821.00	31,514.00	28,153,152.00	406,008.00	0.00	-292,921.00	
	T-6	-0.597345946	-0.270970906	-0.597345946	0.173203223	0.001889446	-0.720608078	-464,633.00	777,829.00	1714697	777,829.00	777,829.00	4,490,846.00	51,773.00	27,401,154.00	32,044.00	0.00	-44,468.00	
	T-7	-0.353665484	-0.347873614	-0.353665484	0.593367256	0.016311199	-0.03853336	-693,443.00	1,960,737.00	1993382	1,960,737.00	1,960,737.00	3,304,424.00	392,685.00	24,074,564.00	14,878.00	0.00	-386,107.00	
	T-8	-0.295931759	-0.27449787	-0.295931759	0.389172625	0.016824794	-0.118110236	-451,000.00	1,524,000.00	1643000	1,524,000.00	1,524,000.00	3,916,000.00	399,000.00	23,715,000.00	45,000.00	0.00	-381,000.00	
	T-9	-0.408163265	-0.046592895	-0.408163265	0.05334785	0	0.111764706	-80,000.00	196,000.00	1717000	196,000.00	196,000.00	3,674,000.00	0.00	23,659,000.00	19,000.00	0.00	170,000.00	
Golden West Refining	T-0 2000	0.564380265	0.002145832	1.894949495	0.633211778	0.398719847	15.17992048	6,566,000.00	11,634,000.00	305988600	3,465,000.00	11,634,000.00	18,373,000.00	9,157,000.00	22,966,000.00	15,271,000.00	0.00	1,006,000.00	
	T-1	0.233580108	-0.007191038	0.373360971	0.621091393	0.996778379	8.034822963	11,779,912.00	50,432,000.00	1638137968	31,551,000.00	50,432,000.00	81,199,000.00	22,277,000.00	22,349,000.00	36,340,000.00	12,576,000.00	6,088,000.00	
	T-2	-0.188116167	-0.006106181	-0.27091258	0.556264749	1.76114082	5.225771302	-6,607,016.00	35,122,000.00	1082020992	24,388,000.00	35,122,000.00	63,139,000.00	19,760,000.00	11,220,000.00	25,968,000.00	4,885,000.00	5,904,000.00	
	T-3	0.078693361	0.003020347	0.09636129	0.527023125	0.937522282	4.239230376	1,867,000.00	23,725,000.00	618140992	19,375,000.00	23,725,000.00	45,017,000.00	10,519,000.00	11,220,000.00	20,116,000.00	4,781,000.00	5,873,000.00	
	T-4	-0.299111901	-0.020081566	-0.672255489	0.348563645	0.559418283	5.570939521	-1,684,000.00	5,630,000.00	83858000	2,505,000.00	5,630,000.00	16,152,000.00	4,039,000.00	7,220,000.00	8,239,000.00	1,149,000.00	2,629,000.00	
	T-5	0.1539967374	0.01328627	1.804971319	0.109386153	0.0284855346	1.408369408	944,000.00	613,000.00	70825000	523,000.00	613,000.00	5,604,000.00	104,000.00	3,651,000.00	2,523,000.00	405,000.00	2,079,000.00	
	T-6	0.84591195	0.013815654	0.935110081	0.186765857	0.012599874	2.513899921	807,000.00	954,000.00	58412000	863,000.00	954,000.00	5,108,000.00	115,000.00	9,127,000.00	2,747,000.00	418,000.00	1,259,000.00	
	T-7	0.711703959	0.016788129	0.74841629	0.249249249	0.009422592	1.959747435	827,000.00	1,162,000.00	49261000	1,105,000.00	1,162,000.00	4,662,000.00	86,000.00	9,127,000.00	2,231,000.00	252,000.00	1,267,000.00	
	Greyhound Pioneer	T-0 1999	0.148417842	0.053067067	0.156729337	1.5650358	0.681113293	23.61782609	3,893,000.00	26,230,000.00	73360000	24,839,000.00	26,230,000.00	16,760,000.00	10,058,000.00	14,767,000.00	25,436,000.00	1,207,000.00	115,000.00
		T-1	0.067016665	0.023282485	0.109372972	1.492963601	1.731912426	13.61674467	1,685,000.00	25,143,000.00	72372000	15,406,000.00	25,143,000.00	16,841,000.00	11,945,000.00	6,897,000.00	25,370,000.00	815,000.00	1,923,000.00
T-2		-0.085532231	-0.025966936	-0.142114835	1.571990414	2.225873114	41.35587762	-2,188,000.00	25,581,000.00	84261000	15,396,000.00	25,581,000.00	16,273,000.00	10,771,000.00	4,839,000.00	25,288,000.00	394,000.00	621,000.00	
T-3		-0.065628383	-0.017696134	-0.071048598	0.832432058	0.827547014	76.38955224	-1,576,000.00	24,014,000.00	89059000	12,282,000.00	24,014,000.00	28,848,000.00	8,009,000.00	9,678,000.00	49,725,000.00	1,456,000.00	670,000.00	
T-4		-0.015477551	-0.005591535	-0.016018384	1.091216818	16.49294533	100.3538175	-474,000.00	30,625,000.00	84771000	29,591,000.00	30,625,000.00	28,065,000.00	18,703,000.00	1,134,000.00	52,912,000.00	978,000.00	-537,000.00	
T-5		0.127767865	0.041742321	0.134532463	0.972852224	0.685491552	-2406.666667	4,368,000.00	34,187,000.00	104642000	32,468,000.00	34,187,000.00	35,141,000.00	19,433,000.00	28,349,000.00	49,773,000.00	767,000.00	-21,000.00	
T-6		-0.086168738	-0.027443629	-0.091966256	0.622117654	0.992921703	-8.451363348	-3,543,000.00	41,117,000.00	129101000	38,525,000.00	41,117,000.00	66,092,000.00	27,354,000.00	27,549,000.00	63,526,000.00	3,113,000.00	-7,885,000.00	
Henry Walker Eltin	T-0 2004	0.093409515	0.035720262	0.174524132	0.655475562	1.153594037	5.551748603	44,615,000.00	477,628,000.00	1249011000	255,638,000.00	#####	728,674,000.00	230,893,000.00	200,151,000.00	631,263,000.00	65,165,000.00	125,443,000.00	
	T-1	0.177492312	0.067032605	0.371859018	0.693112654	1.443379272	6.478354366	80,416,000.00	460,066,000.00	1199655000	216,254,000.00	#####	663,768,000.00	245,994,000.00	170,382,000.00	662,655,000.00	24,219,000.00	106,026,000.00	
	T-2	0.139187854	0.057531928	0.353353886	0.696008897	1.678481295	5.923030803	74,387,000.00	534,436,000.00	1292969000	210,517,000.00	#####	767,858,000.00	285,983,000.00	170,382,000.00	663,510,000.00	95,863,000.00	128,232,000.00	
	T-3	0.097192604	0.037402967	0.241657922	0.693721659	1.939146225	5.960792328	57,126,000.00	587,764,000.00	1527312000	236,392,000.00	#####	847,262,000.00	329,969,000.00	170,162,000.00	721,031,000.00	88,312,000.00	135,794,000.00	
	T-4	0.201521174	0.083018966	0.367244278	0.677918419	1.547112355	8.479317883	108,340,000.00	537,611,000.00	1350050300	295,008,000.00	#####	793,032,000.00	263,170,000.00	170,104,000.00	715,671,000.00	83,386,000.00	94,236,000.00	
	T-5	0.195557267	0.014123546	0.33256706	0.641936358	1.204975158	8.341683111	89,970,032.00	460,070,000.00	864070000	270,532,000.00	#####	716,690,984.00	223,353,000.00	185,359,008.00	645,653,992.00	39,340,000.00	82,117,000.00	
	T-6	0.223492207	0.078340095	0.348912875	0.64603215	5.331345711	5.293986251	58,445,000.00	261,508,000.00	746041984	167,506,000.00	#####	404,791,000.00	118,020,000.00	22,137,000.00	268,021,000.00	37,712,000.00	57,751,000.00	
	T-7	0.174859892	0.071534008	0.323772369	0.647055916	5.209106702	5.858298604	40,998,000.00	234,462,000.00	573126000	126,626,000.00	#####	362,351,992.00	113,944,000.00	21,874,000.00	256,102,992.00	30,608,000.00	48,941,000.00	
	T-8	0.183798129	0.074100707	0.291995972	0.623978412	3.392929723	6.038435856	34,212,000.00	186,139,000.00	461696000	117,166,000.00	#####	298,310,000.00	71,791,000.00	21,159,000.00	198,260,000.00	27,813,000.00	37,439,000.00	
	T-9	0.375866976	0.117535769	0.485826002	0.539365705	1.752160461	4.754312259	37,772,000.00	100,493,000.00	321366000	77,748,000.00	#####	186,317,000.00	32,846,000.00	18,746,000.00	114,396,000.00	24,796,000.00	29,277,000.00	
Huadu	T-0 2003	33.4	0.779333333	33.4	0.001982104	0	125.0647482	1,169,000.00	35,000.00	1500000	35,000.00	35,000.00	17,658,000.00	0	34,489,000.00	17,384,000.00	0.00	139,000.00	
	T-1	83.52941176	0.894770006	83.52941176	0.000680885	0	358.5396683	2,840,000.00	34,000.00	3174000	34,000.00	34,000.00	49,935,000.00	0	34,489,000.00	49,837,000.00	0.00	139,000.00	
	T-2	3.104651163	0.914831131	3.104651163	0.021645722	0	380.2260274	3,738,000.00	1,204,000.00	4086000	1,204,000.00	1,204,000.00	55,623,000.00	0	34,489,000.00	55,513,000.00	0.00	146,000.00	
	T-3	2.072483221	0.91604865	2.072483221	0.028233065	0	302.353503	3,088,000.00	1,490,000.00	3371000	1,490,000.00	1,490,000.00	52,775,000.00	0	34,489,000.00	51,044,000.00	0.00	169,000.00	
	T-4	6.545927641	0.923296614	6.545927641	0.015658282	0	554.1666667	4,526,000.00	691,000.00	4902000	691,000.00	691,000.00	44,130,000.00	0	34,489,000.00	43,225,000.00	0.00	78,000.00	
	T-5	2.146976744	0.94416036	2.146976744	0.058123817	0	1021.294118	4,616,000.00	2,150,000.00	4889000	2,150,000.00	2,150,000.00	36,990,000.00	0	34,489,000.00	34,724,000.00	0.00	34,000.00	
	T-6	1.644135189	0.917258208	1.792371045	0.067165176	0.011400384	2.143546579	4,135,000.00	2,515,000.00	4508000	2,307,000.00	2,515,000.00	37,445,000.00	208,000.00	18,245,000.00	34,724,000.00	0.00	162,000.00	
	T-7	1.459122402	0.86833425	1.614205416	0.058982183	0.012058098	-3472.2	3,159,000.00	2,165,000.00	3638000	1,957,000.00	2,165,000.00	36,706,000.00	220,000.00	18,245,000.00	34,722,000.00	0.00	-10,000.00	

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
	T-4	-1.192723138	-0.03426369	-1.192723138	0.035414444	0.039998403	47.42296369	-2,098,000.00	1,759,000.00	61231000	1,759,000.00	1,759,000.00	49,669,000.00	1,002,000.00	25,051,000.00	48,324,000.00	0.00	1,019,000.00
Ion	T-0 2004	0.157365488	0.073164369	0.414084087	0.566720392	0.841687808	1284.882217	61,142,000.00	388,535,000.00	835680000	147,656,000.00	#####	685,585,000.00	196,742,000.00	233,747,000.00	508,152,000.00	48,202,000.00	433,000.00
	T-1	0.206802114	0.090961282	0.509508346	0.628613017	1.091334701	12.0929566	80,646,000.00	389,967,000.00	886597000	158,282,000.00	#####	620,361,000.00	185,086,000.00	169,596,000.00	432,200,000.00	44,589,000.00	39,427,000.00
	T-2	0.0559868	0.028970301	0.133272235	0.606922781	0.708510692	13.45362958	15,269,000.00	272,725,000.00	527057000	114,570,000.00	#####	449,357,000.00	113,186,000.00	159,752,000.00	357,513,000.00	39,100,000.00	29,480,000.00
	T-3	0.210572823	0.091096591	0.399968774	0.64437853	0.686465997	38.71931565	20,494,000.00	97,325,000.00	224970000	51,239,000.00	97,325,000.00	151,037,000.00	36,763,000.00	53,554,000.00	146,403,000.00	9,752,000.00	4,033,000.00
	T-4	0.326102191	0.152035569	0.398651669	0.639947745	0.184440281	19.348552261	10,703,000.00	32,821,000.00	70398000	26,848,000.00	32,821,000.00	51,287,000.00	5,218,000.00	28,291,000.00	48,559,000.00	5,791,000.00	2,809,000.00
	T-5	-0.764832253	-0.828282828	-0.764832253	0.085783789	0.011430391	0	-128,166.00	167,574.00	154737	167,574.00	167,574.00	1,953,446.00	154,015.00	13,474,167.00	0	0	219,627.00
	T-6	-0.685339201	-2.848427997	-1.029484225	0.112995227	0.018530645	0	-182,194.00	265,845.00	63963	176,976.00	265,845.00	2,352,710.00	249,685.00	13,474,167.00	0	0	206,196.00
	T-7	-0.895397717	-0.268088616	-1.33824083	0.114335162	0.01964537	0	-263,058.00	293,789.00	283832	196,570.00	293,789.00	2,569,542.00	264,705.00	13,474,167.00	0	0	340,775.00
	T-8	-0.660594402	-0.523020241	-0.907928774	0.131260719	0.008253123	0	-222,872.00	337,381.00	426125	245,473.00	337,381.00	2,570,312.00	169,986.00	20,596,566.00	0	0	358,511.00
	T-9	-0.757062147	-0.685421995	-1.030769231	0.127063891	0.008302583	0.005291005	-268,000.00	354,000.00	391000	260,000.00	354,000.00	2,786,000.00	171,000.00	20,596,000.00	1,000.00	0	189,000.00
Jennings	T-0 1994	0.057113468	0.046921738	0.266283565	2.106783836	1.208840002	-39.17927632	25,208,000.00	441,367,000.00	537235000	94,666,000.00	#####	209,498,000.00	353,107,000.00	292,104,000.00	24,768,000.00	94,337,000.00	-3,040,000.00
	T-1	-0.026956749	-0.026933622	-0.075779033	1.872081906	1.45355079	-59.99859254	-15,571,000.00	577,629,000.00	578125000	205,479,000.00	#####	308,549,000.00	424,588,000.00	292,104,000.00	27,146,000.00	#####	-2,842,000.00
	T-2	-0.186805314	-0.086893902	-0.526341161	1.575472881	6.138591844	-17.92125984	-157,226,000.00	841,657,000.00	1809402000	298,715,000.00	#####	534,225,000.00	621,115,000.00	101,182,000.00	15,932,000.00	0	-889,000.00
	T-3	0	#DIV/0!	0	1.554575312	4.997678569	#DIV/0!	0	737,447,000.00	0	737,447,000.00	0	474,372,000.00	505,674,000.00	101,182,000.00	41,620,000.00	0	0
	T-4	0	#DIV/0!	0	1.17020551	4.504097244	#DIV/0!	0	696,566,000.00	0	696,566,000.00	0	595,251,000.00	429,826,000.00	95,430,000.00	45,539,000.00	0	0
	T-5	0	#DIV/0!	0	1.312498301	6.679311244	#DIV/0!	0	675,808,000.00	0	675,808,000.00	0	514,902,000.00	443,887,000.00	66,457,000.00	41,812,000.00	0	0
	T-6	0	#DIV/0!	0	0.960478987	3.611439195	#DIV/0!	0	420,296,000.00	0	420,296,000.00	0	437,590,000.00	231,161,000.00	64,008,000.00	36,550,000.00	0	0
Kinetic Power	T-0 1997	-0.214757813	#DIV/0!	-0.223719894	0.373796849	1.337489381	-0.619052141	-736,353.00	3,428,760.00	0	3,291,406.00	3,428,760.00	9,172,790.00	1,711,319.00	1,279,501.00	958,302.00	0.00	-1,548,015.00
Laverton Gold	T-0 2001	0	#DIV/0!	0	1.459,555556	0.060455594	#DIV/0!	0	13,136,000.00	0	13,136,000.00	13,136,000.00	9,000.00	2,569,000.00	42,494,000.00	0	0	0
	T-1	0.121643175	0.151374557	0.122643081	1.493788159	0.8181914	81.81216975	6,810,742.00	55,989,512.00	44992647	55,533,031.00	55,989,512.00	37,481,561.00	34,768,569.00	42,494,422.00	56,744,452.00	4,164,872.00	744,502.00
	T-2	0.200673853	0.14580307	0.299721702	0.70775557	0.896850523	11.10785163	9,364,150.00	44,660,552.00	64224642	31,242,816.00	44,660,552.00	63,099,879.00	34,728,350.00	38,722,562.00	64,334,971.00	4,543,484.00	620,088.00
	T-3	0.133376204	0.122234386	0.216936614	0.654095562	1.25741237	8.024665416	7,942,669.00	59,550,870.00	64979007	36,612,856.00	59,550,870.00	91,043,073.00	48,438,746.00	38,522,562.00	69,119,566.00	3,211,494.00	9,013,592.00
	T-4	-0.046634231	-0.042725843	-0.066696996	0.438077192	0.210480973	21.18608706	-796,939.00	17,089,142.00	18652888	11,948,649.00	17,089,142.00	39,009,431.00	5,062,173.00	24,050,501.00	34,530,144.00	0	1,629,850.00
	T-5	-0.089421488	-0.102635184	-0.304960541	0.265281066	0.366899133	0.547169811	-541,000.00	6,050,000.00	5285000	1,774,000.00	6,050,000.00	22,806,000.00	4,314,000.00	11,758,000.00	87,000.00	0	159,000.00
	T-6	-0.31889117	-2.147994467	-2.614478114	0.444911383	0.384477183	0.00116144	-1,553,000.00	4,870,000.00	723000	594,000.00	4,870,000.00	10,946,000.00	4,280,000.00	11,132,000.00	1,000.00	0	861,000.00
	T-7	12.82608696	1.97986567	12.82608696	0.005734231	0.000564334	0.000470146	295,000.00	23,000.00	1490000	23,000.00	23,000.00	4,011,000.00	6,000.00	10,632,000.00	1,000.00	0	2,127,000.00
T-8	32.14285714	0.633802817	32.14285714	0.003769521	0	0.001011122	450,000.00	14,000.00	710000	14,000.00	14,000.00	3,714,000.00	0	10,632,000.00	2,000.00	0	1,978,000.00	
Macraes Mining	T-0 1997	1.275759789	0.236517516	1.277926057	0.119975606	0.070619276	7.575851465	18,783,315.00	14,723,238.00	79416169	14,698,280.00	14,723,238.00	122,718,597.00	1,599,965.00	22,656,208.00	111,879,842.00	18,096,087.00	17,156,610.00
	T-1	0.559230652	0.23719299	1.523350924	0.190858041	0.073115918	5.264497287	23,358,504.00	41,768,998.00	98478897	15,333,633.00	41,768,998.00	218,848,511.00	1,647,268.00	22,529,540.00	174,902,710.00	18,122,610.00	36,665,480.00
	T-2	0.720565473	0.354035306	1.447132112	0.187187393	0.073830019	3.169050629	27,126,490.00	37,646,100.00	76620861	18,744,999.00	37,646,100.00	201,114,506.00	1,640,867.00	22,224,930.00	148,771,642.00	9,976,752.00	50,093,360.00
	T-3	0.581542271	0.20449169	1.314672698	0.142768664	0.076466874	3.1803247	14,839,092.00	25,516,790.00	72565746	11,287,290.00	25,516,790.00	178,728,226.00	1,597,484.00	20,891,190.00	131,716,434.00	8,207,962.00	43,996,890.00
	T-4	0.312849267	0.092425151	0.624909998	0.249538947	1.417981728	1.311124358	15,788,258.00	50,466,022.00	170820987	25,684,851.00	50,466,022.00	202,237,056.00	29,646,297.00	20,907,390.00	109,402,174.00	7,202,343.00	88,934,750.00
	T-5	0.255324042	0.178847609	0.645783376	0.449000007	2.159406002	8.875246555	12,797,597.00	50,122,961.00	71555874	19,817,167.00	50,122,961.00	111,632,428.00	37,137,860.00	17,198,180.00	90,547,670.00	7,447,590.00	11,041,410.00
	T-6	0.254801499	0.216759256	0.77352214	0.469261825	2.728870256	7.124928037	12,216,970.00	47,947,010.00	56361930	15,793,950.00	47,947,010.00	102,175,390.00	43,440,640.00	15,918,910.00	83,060,770.00	4,808,830.00	12,332,700.00
Milnes Holdings	T-0 2002	0.074039927	0.02687103	0.143006954	0.593152684	0.931481914	47.34587218	3,481,497.00	47,021,886.00	129563212	24,344,949.00	47,021,886.00	79,274,506.00	23,397,557.00	25,118,638.00	52,673,487.00	15,351,263.00	1,436,762.00
	T-1	0.105689427	0.042572921	0.1999858	0.632433393	0.982905986	2.904237305	5,323,591.00	50,370,138.00	125046413	26,619,845.00	50,370,138.00	79,644,969.00	23,083,609.00	23,485,063.00	52,742,195.00	13,717,639.00	22,883,747.00
	T-2	0.20620113	0.076394781	0.323434848	0.561407343	0.543087063	167.87303406	8,002,817.00	38,810,738.00	104,756,069	24,743,212.00	38,810,733.00	69,131,146.00	12,278,726.00	22,609,130.00	42,944,260.00	14,443,807.00	341,854.00
	T-3	0.158177286	0.059314113	0.362690504	1.291646029	0.762846413	6.444897959	4,950,000.00	31,294,000.00	83454000	13,648,000.00	31,294,000.00	24,228,000.00	16,048,000.00	21,037,000.00	0	9,474,000.00	1,470,000.00
	T-4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0
	T-5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0
MIM Holdings	T-0 2002	0.205222664	0.117974475	0.550021844	0.485524795	0.747381223	33.1138756	629,500,000.00	#####	5335900000	#####	#####	#####	#####	#####	#####	#####	209,000,000.00
	T-1	0.100847926	0.088530373	0.234414499	0.650830784	1.204767699	37.01180891	547,100,000.00	#####	6179800000	#####	#####	#####	#####	#####	#####	#####	186,300,000.00
	T-2	0.197839889	0.199793647	0.550494119	0.600973627	1.05949511	39.43634037	813,300,000.00	#####	4070700000	#####	#####	#####	#####	#####	#####	#####	156,300,000.00
	T-3	0.127610984	0.102133133	0.554547619	0.583429472	1.091314954	58.70347003	458,200,000.00	#####	4486300000	#####	#####	#####	#####	#####	#####	#####	63,400,000.00

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs													
								CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash			
	T-4	0.112483658	0.105643901	0.383865128	0.634778598	3.156005301	52.4140527	464,400,032.00	#####	4395900064	#####	#####	#####	#####	830,100,000.00	#####	#####	79,700,000.00			
	T-5	0.09650665	0.064228118	0.234578224	0.538686432	2.119047619	29.28792342	252,500,000.00	#####	3931300000	#####	#####	#####	#####	819,000,000.00	#####	#####	135,800,000.00			
	T-6	0.072508608	0.031305884	0.29217776	0.491694271	1.19416996	11.49558267	145,300,000.00	#####	4641300000	497,300,000.00	#####	#####	966,800,000.00	809,600,000.00	#####	#####	237,700,000.00			
	T-7	0.200067896	0.086136757	0.513580247	0.406177464	0.891610148	6.066570881	353,600,000.00	#####	4105100000	688,500,000.00	#####	#####	709,900,000.00	796,200,000.00	#####	#####	417,600,000.00			
	T-8	0.124589297	0.047572354	0.556229978	0.470094271	1.882285423	4.643865843	329,900,000.00	#####	6934700000	593,100,000.00	#####	#####	#####	784,100,000.00	#####	#####	679,800,000.00			
	T-9	0.102138015	0.059460444	0.269220196	0.488013844	2.616062544	9.637454982	293,800,000.00	#####	4941100000	#####	#####	#####	#####	703,500,000.00	#####	#####	333,200,000.00			
National Forge	T-0 2002	-0.110631409	-0.061131175	-0.137379002	0.889274002	1.171080192	213.3311688	-3,690,000.00	33,354,000.00	60362000	26,860,000.00	33,354,000.00	37,507,000.00	15,655,000.00	13,368,000.00	26,053,000.00	6,800,000.00	154,000.00			
	T-1	-0.071640419	-0.028508262	-0.105208269	0.649616021	0.876795332	34.8436853	-1,715,000.00	23,939,000.00	60158000	16,301,000.00	23,939,000.00	36,851,000.00	11,721,000.00	13,368,000.00	27,469,000.00	6,190,000.00	966,000.00			
	T-2	0.067755102	0.036616878	0.089048969	0.523328553	0.597247157	24.63515625	1,162,000.00	17,150,000.00	31734000	13,049,000.00	17,150,000.00	32,771,000.00	7,984,000.00	13,368,000.00	25,386,000.00	6,147,000.00	1,280,000.00			
	T-3	-0.067652217	-0.030346171	-0.110655738	0.48939301	0.441352484	7.983518589	-810,000.00	11,973,000.00	26692000	7,320,000.00	11,973,000.00	24,465,000.00	5,900,000.00	13,368,000.00	17,930,000.00	2,899,000.00	2,609,000.00			
	T-4	0.032504469	0.016442636	0.050562508	0.515564121	0.897269573	12.32731649	400,000.00	12,306,000.00	24327000	7,911,000.00	12,306,000.00	23,869,000.00	5,948,000.00	13,368,000.00	17,719,000.00	2,769,000.00	1,662,000.00			
	T-5	-0.287453466	-0.07535475	-0.5804551	0.464417551	0.771057009	10.98815867	-2,857,000.00	9,939,000.00	37914000	4,922,000.00	9,939,000.00	21,401,000.00	5,099,000.00	6,613,000.00	15,749,000.00	2,810,000.00	1,689,000.00			
	T-6	0.200889461	0.061817985	0.233251801	0.739207544	0.590717863	8.303472552	3,593,000.00	17,089,000.00	55534000	14,718,000.00	17,089,000.00	23,118,000.00	8,846,000.00	14,975,000.00	12,894,000.00	3,605,000.00	1,987,000.00			
	T-7	0.025569481	0.011941383	0.042419183	0.772426951	0.7160601	97.43564356	559,000.00	21,862,000.00	46812000	13,178,000.00	21,862,000.00	28,303,000.00	10,723,000.00	14,975,000.00	15,320,000.00	4,362,000.00	202,000.00			
	T-8	0.036835652	0.019939403	0.06728335	0.647263819	0.81378503	-292.96	691,000.00	18,759,000.00	34655000	10,270,000.00	18,759,000.00	28,982,000.00	11,122,000.00	13,667,000.00	16,722,000.00	5,250,000.00	-75,000.00			
	T-9	0.035902503	0.015160472	0.083413048	0.450511945	0.427114134	148	436,000.00	12,144,000.00	28759000	5,227,000.00	12,144,000.00	26,956,000.00	5,778,000.00	13,528,000.00	13,784,000.00	5,308,000.00	129,000.00			
Newmont Yandal	T-0 2002	0.079562898	0.133223458	0.95795075	1.415460424	1.357498473	2.574956927	57,068,000.00	717,269,000.00	428363000	59,573,000.00	#####	506,739,000.00	486,708,000.00	358,533,000.00	242,308,000.00	29,695,000.00	105,634,000.00			
	T-1	0.204101294	0.288803588	1.167630108	0.881498808	1.426005417	10.66658425	134,525,000.00	659,109,000.00	465801000	115,212,000.00	#####	747,714,000.00	511,270,000.00	358,533,000.00	#####	28,117,000.00	97,065,000.00			
	T-2	0.202058264	0.295602044	2.689862624	0.782087029	1.329054787	108.1600042	119,472,000.00	591,275,000.00	404165000	44,414,000.00	#####	756,022,000.00	476,510,000.00	358,533,000.00	#####	19,459,000.00	9,506,000.00			
	T-3	0.157179209	0.232977584	1.632954456	0.612704932	1.421230479	54.63056501	106,128,976.00	675,210,016.00	455532992	64,992,000.00	#####	#####	509,558,016.00	358,532,992.00	585,916,992.00	58,239,000.00	11,791,000.00			
	T-4	0.126857915	0.067697637	0.826200185	0.617072152	8.549977075	18.44725682	85,674,000.00	675,354,000.00	1265539000	97,070,000.00	#####	#####	522,130,000.00	61,068,000.00	512,892,008.00	55,634,000.00	30,819,000.00			
	T-5	0.664268968	0.30027539	2.595413212	0.381072351	1.886865983	27.79242868	116,451,000.00	175,307,000.00	387814000	44,868,000.00	#####	460,036,000.00	95,866,000.00	50,807,000.00	278,161,000.00	25,777,000.00	10,936,000.00			
	T-6	0.392841217	0.204848412	0.628057847	0.374873436	2.55655178	13.62689455	61,669,000.00	156,982,000.00	301047000	98,190,000.00	#####	418,760,000.00	129,845,000.00	50,807,000.00	91,111,000.00	35,660,000.00	9,303,000.00			
	T-7	0.100341035	0.045920162	0.459524857	0.328118696	1.796401515	6.539747843	10,445,000.00	104,095,000.00	227460000	22,730,000.00	#####	317,248,000.00	89,159,000.00	49,632,000.00	46,034,000.00	3,243,000.00	7,535,000.00			
	T-8	-0.229806176	-0.044362491	-0.31214965	0.169231373	0.563211804	0.109169335	-4,956,000.00	21,566,000.00	111716000	17,677,000.00	21,566,000.00	7,863,000.00	13,961,000.00	4,910,000.00	#####	0.00	44,976,000.00			
	T-9	-0.153201412	-0.108764709	-0.397157327	0.657768198	1.059702837	15.3814433	-2,431,000.00	15,868,000.00	22351000	6,121,000.00	15,868,000.00	24,124,000.00	11,768,000.00	11,105,000.00	1,492,000.00	0.00	97,000.00			
Non-ferral Recyclers	T-0 2000	0.026641202	0.008117847	0.029734734	0.719209157	1.585507062	47.62286689	1,381,000.00	51,837,000.00	170119000	46,444,000.00	51,837,000.00	72,075,000.00	24,921,000.00	15,718,000.00	39,083,000.00	16,731,000.00	1,172,000.00			
	T-1	-0.003761297	-0.001053756	-0.004490522	0.730481283	2.277666363	64.00402685	-149,000.00	39,614,000.00	141399000	33,181,000.00	39,614,000.00	54,230,000.00	24,986,000.00	10,970,000.00	33,731,000.00	13,952,000.00	745,000.00			
	T-2	0	#DIV/0!	0	1.049427526	1.044062658	105.1587302		35,563,000.00		31,744,000.00	35,563,000.00	33,888,000.00	20,662,000.00	19,790,000.00	0	13,250,000.00	126,000.00			
Otter Gold	T-0 2002	0.113673431	0.204916255	0.281845603	1.140587356	0.971196455	31.12821782	7,346,639.02	64,629,341.63	35851909.46	26,066,182.82	64,629,341.63	56,663,210.64	29,540,349.06	30,416,450.67	106,503,369.62	2,152,237.77	3,490,582.34			
	T-1	0.084372048	0.049676102	0.109556266	0.851883607	1.066511806	53.9166222	4,343,216.96	51,476,964.77	87270843.29	39,643,711.14	51,476,964.77	60,427,227.80	28,910,409.69	27,107,444.60	76,047,345.77	4,359,158.30	1,491,311.97			
	T-2	0.08063325	0.074964462	0.23419232	0.609868116	3.07386259	51.57625075	6,218,514.36	77,120,969.04	82952831.7	26,553,024.23	77,120,969.04	126,455,158.03	53,547,248.52	17,420,182.90	130,648,965.19	6,628,429.33	2,661,639.66			
	T-3	0.20671099	0.148122118	0.684313458	0.521884918	2.1216155	10.66502641	13,564,887.00	65,622,476.00	91579078	19,822,622.00	65,622,476.00	125,741,277.00	38,010,893.00	17,916,014.00	118,932,432.00	6,204,109.00	11,733,355.00			
	T-4	0.495917208	0.219160929	1.976539683	0.335950319	0.732164955	10.18558890	16,499,165.00	33,269,999.00	75283332	8,347,500.00	33,269,999.00	99,032,497.00	13,333,333.00	18,210,832.00	81,809,999.00	3,120,834.00	8,338,333.00			
	T-5	0.41959631	0.184111754	1.461141235	0.334008392	0.657608794	18.09533888	15,986,713.00	38,100,223.00	86831572	10,941,251.00	38,100,223.00	114,069,658.00	13,314,842.00	20,247,360.00	105,156,420.00	3,586,759.00	6,009,458.00			
	T-6	0.445471204	0.244414742	1.537962807	0.354186865	0.593790048	5.844826919	11,099,373.00	24,916,028.00	45412044	7,216,932.00	24,916,028.00	70,347,126.00	4,817,348.00	8,112,881.00	36,242,204.00	4,548,130.00	6,978,878.00			
	T-7	0.281030528	0.261982449	1.458253572	0.289714865	0.033108054	2.048791268	4,376,410.00	15,572,721.00	16704974	3,001,131.00	15,572,721.00	53,751,888.00	276,940.00	8,364,732.00	24,185,192.00	2,237,188.00	12,896,570.00			
	T-8	0.606772483	0.365970609	2.485602999	0.267909642	0.032657658	1.108611384	7,676,934.00	12,652,080.00	20976961	3,088,560.00	12,652,080.00	47,225,176.00	236,640.00	7,246,080.00	18,788,396.00	1,800,912.00	18,572,160.00			
	T-9	0.650644134	0.311789967	3.219862009	0.229416898	0.033002929	1.46551952	5,583,772.00	8,581,914.00	17908761	1,734,165.00	8,581,914.00	37,407,506.00	234,693.00	7,111,278.00	16,680,027.00	1,125,405.00	12,149,570.00			
Pasminco	T-0 2004	0.073410503	0.073040606	0.073410503	8.011592226	1.417319775	0	172,500,000.00	#####	2361700000	#####	#####	293,300,000.00	#####	#####	0	0	287,800,000.00			
	T-1	0.060628196	0.110808729	0.060628196	1.71223783	1.911134141	7.492997199	215,800,000.00	#####	1947500000	#####	#####	#####	#####	#####	0	#####</				

Failure Model Datasheet

Data for Failed Companies - sheets 1-5

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow			Gearing		O/trading (FA+I)/NC	Company financial data for factor calcs											
		CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC		CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash	
Phoenix Technology	T-0 2000	-9.158666444	-0.764777989	-9.158666444	0.125620228		0	0.148228478	-3,666,608.00	400,343.00	4794343	400,343.00	400,343.00	3,186,931.00	0	11,233,295.00	196,552.00	0.00	1,326,007.00
	T-1	-17.05179806	-41.218946	-17.05179806	0.090537838		0	0.332776632	-3,233,379.00	189,621.00	78444	189,621.00	189,621.00	2,094,384.00	0	6,489,895.00	114,771.00	0.00	344,889.00
	T-2	-28.3022027	-0.170006405	-28.3022027	0.005885863		0	0.005992032	-889,142.00	31,416.00	5230050	31,416.00	31,416.00	5,337,535.00	0	2,625,740.00	21,997.00	0.00	3,671,042.00
Planar Semiconductor	T-0 2002	-0.69051447	-0.856003985	-0.698373984	1.289119169		0	23.46551754	-3,034,263.51	4,394,206.99	3544683.86	4,344,754.50	4,394,206.99	3,408,689.51	0	8,096,079.12	1,418,226.78	985,517.48	102,437.30
	T-1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0
	T-2	-2.258926993	-0.401581826	-2.258926993	0.085518015	0.056962421	0.010609375	-686,738.27	304,010.83	1710083.04	304,010.83	304,010.83	3,554,933.21	225,559.57	3,959,796.03	37,106.50	0	3,497,519.86	
	T-3	0	#DIV/0!	0	0.085518015	0.05696242	0.010609374	0	309,998.16	0	309,998.16	309,998.16	3,624,945.70	230,001.84	4,037,782.07	37,837.29	0	3,566,401.62	
Recruiters Australia	T-0 2000	-0.149448784	-0.033816824	-0.185148336	0.263830033	0.086041914	3.35504886	-2,047,000.00	13,697,000.00	60532000	11,056,000.00	13,697,000.00	51,916,000.00	3,264,000.00	37,935,000.00	2,060,000.00	0.00	614,000.00	
	T-1	0	#DIV/0!	0	0.481642917	0.015118918	0	0	2,873,000.00	0	2,321,000.00	2,873,000.00	5,965,000.00	513,000.00	33,931,000.00	0	0	5,051,000.00	
	T-2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0
	T-3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0
RGC	T-0 1997	0.219102633	0.137718483	0.876410532	0.4815941	4.288698955	8.403367003	163,100,000.00	744,400,000.00	1184300000	186,100,000.00	#####	#####	451,600,000.00	105,300,000.00	994,600,000.00	253300000	148,500,000.00	
	T-1	0.205846218	0.113608685	0.656772203	0.507708324	5.84492381	5.858084025	187,318,000.00	909,990,000.00	1648800000	285,210,000.00	#####	#####	613,717,000.00	105,000,000.00	962,622,000.00	#####	201,725,000.00	
	T-2	0.123797238	0.073047014	0.287026329	0.548055731	4.300270393	9.450929447	115,163,000.00	930,255,000.00	1576560000	401,228,000.00	#####	#####	446,897,000.00	103,923,000.00	#####	#####	132,014,000.00	
	T-3	0.168499229	0.091092404	0.61765375	0.462695568	3.127860054	18.76745821	81,450,000.00	483,385,000.00	894147000	131,870,000.00	#####	#####	314,694,000.00	100,610,000.00	697,262,000.00	#####	45,523,000.00	
	T-4	0.141269879	0.092453499	0.736916221	0.485187082	3.918397685	12.49463413	76,402,000.00	540,823,000.00	826383000	103,678,000.00	#####	#####	392,741,000.00	100,230,000.00	753,776,000.00	#####	69,793,000.00	
	T-5	0.223175319	0.218320877	0.991224307	0.516705026	4.247779965	8.934818205	136,332,000.00	610,874,000.00	624457000	137,539,000.00	#####	#####	422,858,000.00	99,548,000.00	829,820,000.00	#####	104,431,000.00	
	T-6	0.090254843	0.087237832	0.459251614	0.585619839	5.332648623	9.075918272	63,182,000.00	700,040,000.00	724250000	137,576,000.00	#####	#####	529,596,000.00	99,312,000.00	819,032,000.00	#####	102,584,000.00	
	T-7	0	0	0	0.557388465	3.48945388	5.299369872	0	550,692,000.00	912901000	226,589,000.00	#####	#####	987,986,000.00	312,512,000.00	89,559,000.00	425,329,000.00	#####	101,884,000.00
	T-8	0	#DIV/0!	0	0.562245433	3.032421408	2.686984353	0	450,010,000.00	0	183,220,000.00	#####	#####	800,380,000.00	258,708,000.00	85,314,000.00	302,044,000.00	97,567,000.00	148,721,000.00
Ross Mining	T-0 1999	0.271815139	0.256401398	0.791139868	0.556236202	0.911210907	39.75012494	31,913,000.00	117,407,000.00	124465000	40,338,000.00	#####	#####	211,074,000.00	78,930,000.00	86,621,000.00	70,810,000.00	8,730,000.00	2,001,000.00
	T-1	0.310977551	0.267846763	0.809855418	0.470663326	1.720181113	4.333616093	24,422,000.00	78,533,000.00	91179000	30,156,000.00	78,533,000.00	166,856,000.00	53,188,000.00	30,920,000.00	30,775,000.00	4,986,000.00	8,252,000.00	
	T-2	0.335615266	0.087795487	0.570265358	0.180453682	0	0.450614593	7,844,000.00	23,372,000.00	89344000	13,755,000.00	23,372,000.00	129,518,000.00	0	29,533,000.00	10,842,000.00	4,665,000.00	34,413,000.00	
	T-3	0.974617046	0.358256632	1.411978092	0.263138856	0.001774325	2.48870226	19,851,000.00	20,368,000.00	55410000	14,059,000.00	20,368,000.00	77,404,000.00	37,000.00	20,853,000.00	7,954,000.00	4,492,000.00	5,001,000.00	
	T-4	0.925500603	0.430434002	1.50936418	0.337887409	0.175890695	3.778310105	19,181,000.00	20,725,000.00	44562000	12,708,000.00	20,725,000.00	61,337,000.00	3,051,000.00	17,346,000.00	5,610,000.00	3,065,000.00	2,296,000.00	
	T-5	1.646534189	0.425	2.0692164	0.281678346	0.010998257	0.723470178	21,046,000.00	12,782,000.00	49520000	10,171,000.00	12,782,000.00	45,378,000.00	183,000.00	16,639,000.00	4,887,000.00	3,519,000.00	11,619,000.00	
	T-6	0.405578441	0.124096459	0.488493036	0.455931935	0.898548004	0.72450928	8,172,000.00	20,149,000.00	65852000	16,729,000.00	20,149,000.00	44,193,000.00	14,357,000.00	15,978,000.00	4,632,000.00	4,854,000.00	13,093,000.00	
	T-7	0.292255892	0.082306088	0.322197476	0.284346577	0.101445578	32.80869565	868,000.00	2,970,000.00	10546000	2,694,000.00	2,970,000.00	10,445,000.00	1,193,000.00	11,760,000.00	1,389,000.00	2,384,000.00	115,000.00	
Sons of Gwalia	T-0 2003	0.034299979	0.0354357	0.204572373	0.537184858	0.611909668	57.4644936	25,735,000.00	750,292,000.00	726245000	125,799,000.00	#####	#####	299,058,000.00	488,729,000.00	809,030,000.00	79486000	15,462,000.00	
	T-1	0.09015454	0.065673824	0.482543327	0.507159488	0.728273803	12.6462892	57,579,000.00	638,670,000.00	876742000	119,324,000.00	#####	#####	353,164,000.00	484,933,000.00	809,625,000.00	78,663,000.00	70,241,000.00	
	T-2	0.227343284	0.141151827	1.171280172	0.569724842	1.105914246	7.487094858	96,517,000.00	424,543,000.00	669551000	82,403,000.00	#####	#####	745,172,000.00	241,911,000.00	218,743,000.00	517,244,000.00	49,866,000.00	75,745,000.00
	T-3	0.343855701	0.253014761	1.436497905	0.539860964	0.864979943	7.942469563	101,151,000.00	294,167,000.00	399783000	70,415,000.00	#####	#####	544,894,000.00	157,845,000.00	182,484,000.00	163,487,000.00	47,878,000.00	26,612,000.00
	T-4	0.235842514	0.148214366	0.859307	0.543153587	0.821578786	27.16032372	58,542,008.00	248,225,000.00	394982008	68,127,000.00	#####	#####	457,007,016.00	140,872,000.00	171,464,992.00	487,032,008.00	43,898,000.00	19,548,000.00
	T-5	0.517946144	0.319518146	1.457824516	0.58444838	5.001366808	10.4695076	144,450,000.00	278,890,000.00	452087000	98,086,000.00	#####	#####	477,185,000.00	139,048,000.00	27,802,000.00	419,967,000.00	38,231,000.00	43,765,000.00
	T-6	0.285017573	0.132022994	0.695027337	0.629000067	7.085405363	13.83243824	66,740,000.00	234,161,000.00	505518000	96,025,000.00	#####	#####	372,275,000.00	181,521,000.00	25,619,000.00	314,188,000.00	20,640,000.00	24,206,000.00
	T-7	0.404243831	0.260435509	0.851327534	0.314492946	3.006971656	2.862799162	59,896,000.00	148,168,000.00	229984000	70,356,000.00	#####	#####	471,132,984.00	76,708,000.00	25,510,000.00	63,624,000.00	14,247,000.00	27,201,000.00
	T-8	0.544174473	0.288242654	0.72505882	0.437678788	0.891142361	2.10559686	47,458,000.00	87,211,000.00	164646000	65,454,000.00	87,211,000.00	199,258,000.00	15,906,000.00	17,849,000.00	41,002,000.00	14,790,000.00	26,497,000.00	
	T-9	1.065508357	0.506530811	1.287576117	0.302428698	0.385413144	32.25806452	46,730,000.00	43,857,000.00	92255000	36,293,000.00	43,857,000.00	145,016,000.00	3,419,000.00	8,871,000.00	38,078,000.00	3,922,000.00	1,302,000.00	
Stanilite	T-0 1995	-0.131179171	-0.094250807	-0.238456795	0.486663434	2.589832206	-705.5802469	-12,374,000.00	94,329,000.00	131288000	51,892,000.00	94,329,000.00	193,828,000.00	51,706,000.00					

Failure Model Datasheet

Data for *Failed Companies* - sheets 1-5

Sheet 3 - Cash Flow and Gearing Indicators

Company	Period	Cashflow			Gearing		O/trading	Company financial data for factor calcs											
		CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash	
	T-1	-0.211013031	-0.056099029	-0.285876993	0.165896022	0.049030829	2.523091098	-6,526,000.00	30,927,000.00	116330000	22,828,000.00	30,927,000.00	186,424,000.00	7,925,000.00	161,633,000.00	9,342,000.00	12,566,000.00	8,683,000.00	
	T-2	-0.104267701	-0.032305566	-0.118915929	0.078456141	0.00691085	0.20911614	-1,075,000.00	10,310,000.00	33276000	9,040,000.00	10,310,000.00	131,411,000.00	840,000.00	121,548,000.00	3,918,000.00	0	18,736,000.00	
	T-3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	
Starch International	T-0 2002	-0.369927803	-0.432776521	-0.380056628	0.807556131	0.184016721	3.405774705	-1,885,532.00	5,097,027.00	4356826	4,961,187.00	5,097,027.00	6,311,669.00	2,799,780.00	15,214,813.00	582,316.00	812,737.00	409,614.00	
	T-1	0.217827427	0.084413109	0.22224324	0.9321973	0.188186736	0.799967382	1,843,389.00	8,462,612.00	21837710	8,294,466.00	8,462,612.00	9,078,134.00	2,863,226.00	15,214,813.00	733,261.00	1,101,249.00	2,293,231.00	
	T-2	-0.076507046	-0.074091617	-0.077948428	1.294439808	0.192529281	1.213320086	-377,457.00	4,933,624.00	5094463	4,842,394.00	4,933,624.00	3,811,397.00	2,929,297.00	15,214,813.00	587,473.00	568,963.00	953,117.00	
	T-3	0.364365805	0.336268619	0.365222076	1.347185066	0.181679722	0.307607007	2,236,685.00	6,138,570.00	6651483	6,124,178.00	6,138,570.00	4,556,590.00	2,764,223.00	15,214,813.00	375,942.00	65,120.00	1,433,849.00	
	T-4	-0.354452116	-0.313136691	-0.3561863	2.002347815	0.2359168	1.122045462	-1,938,628.00	5,469,365.00	6190996	5,442,736.00	5,469,365.00	2,731,476.00	3,589,430.00	15,214,813.00	351,952.00	0	313,670.00	
	T-5	0.190355651	0.068820892	0.191402449	1.312869764	0.266801543	0.290749351	1,554,457.00	8,166,067.00	22586993	8,121,406.00	8,166,067.00	6,220,013.00	3,181,467.00	11,924,470.00	343,308.00	178,046.00	1,793,139.00	
	T-6	-0.200417663	-0.158316672	-0.200417663	2.718260041	0.325123213	0.075721846	-981,880.00	4,899,169.00	6202000	4,899,169.00	4,899,169.00	1,802,318.00	3,876,922.00	11,924,470.00	48,005.00	0	633,965.00	
	T-7	-0.181503889	-0.180154418	-0.181503889	1.705651106	0.224924522	0.192307692	-630,000.00	3,471,000.00	3497000	3,471,000.00	3,471,000.00	2,035,000.00	2,682,000.00	11,924,000.00	80,000.00	0	416,000.00	
	T-8	-0.457794677	-0.161545686	-0.459541985	1.031777168	0.150033546	0.510752688	-1,204,000.00	2,630,000.00	7453000	2,620,000.00	2,630,000.00	2,549,000.00	1,789,000.00	11,924,000.00	95,000.00	0	186,000.00	
	T-9	0.206691613	0.082870003	0.208019495	0.851865742	0.088980208	0.2112	939,000.00	4,543,000.00	11331000	4,514,000.00	4,543,000.00	5,333,000.00	1,061,000.00	11,924,000.00	132,000.00	0	625,000.00	
Target Resources	T-0 1996	-1.33190203	-0.121383359	-1.33190203	0.073298009	0	0.047300971	-576,322.00	432,706.00	4747949	432,706.00	432,706.00	5,903,380.00	0	13,011,380.00	73,427.00	0	1,552,336.00	
	T-1	-0.246977547	-0.305555556	-0.246977547	0.339988256	0.043930297	0	0	-143,000.00	579,000.00	468000	579,000.00	579,000.00	1,703,000.00	300,000.00	6,829,000.00	0	0	266,000.00
	T-2	-1.762870515	-0.62396466	-1.762870515	0.246633321	0	0	-1,130,000.00	641,000.00	1811000	641,000.00	641,000.00	2,599,000.00	0	6,673,000.00	0	0	728,000.00	
	T-3	-1.799242424	-0.734157651	-1.799242424	0.378766141	0	0	-475,000.00	264,000.00	647000	264,000.00	264,000.00	697,000.00	0	3,941,000.00	0	0	251,000.00	
	T-4	-3.160714286	-3.992481203	-3.160714286	0.803827751	0.004856053	0.017857143	-531,000.00	168,000.00	133000	168,000.00	168,000.00	209,000.00	14,000.00	2,883,000.00	3,000.00	0	168,000.00	
Woolstock Australia	T-0 2001	50.16461475	0.870205817	50.16461475	0.020585647	0	0.980480119	362,640,000.00	7,229,000.00	416729000	7,229,000.00	7,229,000.00	351,167,000.00	0	349,000.00	0	#####	161,835,000.00	
	T-1	0.998411303	0.736820866	1.973216502	0.243883143	378.2234957	6.696721196	135,116,000.00	135,331,000.00	183377000	68,475,000.00	#####	554,901,000.00	132,000,000.00	349,000.00	1,647,000.00	#####	70,971,000.00	

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Air New Zealand	T-0 2006	0.029258098	-0.115360502	0.046394984	0.367070994	0.513056728	115141047.8	-453,984,702.69	182,580,804.34	3,935,356,526.03	963,338,714.88	2,624,393,453.41	1,415,412,451.68	1,300,271,403.90	\$0.96	1,003,477,828.00
	T-1	0.100684262	-0.146383187	0.051808407	0.564649935	1.124314495	377739066.7	-549,188,594.48	194,370,587.70	3,751,719,079.49	1,320,639,942.60	2,338,864,949.12	1,496,286,788.30	1,118,547,721.65	\$1.32	1,000,484,805.00
	T-2	0.125631286	-0.195182742	0.061462981	0.455229177	1.078867365	437292616.2	-679,384,685.51	213,938,012.76	3,480,762,078.40	1,080,535,626.72	2,373,608,021.88	1,458,470,373.75	1,021,177,757.52	\$0.36	3,001,487,852.00
	T-3	0.063299967	-0.247817133	0.063091566	0.602466989	0.663929592	204456958.3	-800,441,767.07	203,783,830.98	3,229,969,442.99	1,403,274,168.96	2,329,213,375.24	1,196,826,436.18	992,369,477.91	\$0.48	2,923,487,852.00
	T-4	0.048360939	-0.274581302	-0.008349839	0.639937289	0.037935949	162776049.8	-924,201,658.89	-28,104,371.87	3,365,857,957.49	1,666,388,075.64	2,603,986,521.51	1,240,776,740.97	1,078,000,691.20	\$0.57	2,923,487,852.00
	T-5	-0.104476457	-0.104441949	-0.006613854	0.146251403	-0.916727432	-675693448.1	-675,470,269.41	-42,774,589.51	6,467,423,083.05	885,480,786.45	6,054,511,398.06	2,224,957,755.46	2,900,651,203.57	\$1.17	756,821,185.00
	T-6	-0.126322068	0.069278337	0.028735784	0.169228438	-0.232031062	-910927322.3	499,576,447.94	207,218,033.05	7,211,149,526.71	1,004,474,361.03	5,935,612,064.82	1,976,832,985.72	2,887,760,308.04	\$1.77	567,499,639.00
	T-7	0.055434922	0.297399183	0.060998274	1.030075811	2.824662428	195242392.1	1,047,443,130.69	214,836,578.99	3,522,010,781.99	1,871,131,808.70	1,816,499,125.23	960,367,035.63	765,124,643.57	\$3.30	567,009,639.00
	T-8	0.018181149	0	0.041522347	0.655440545	1.086511084	62538789.24	0	142,826,907.58	3,439,759,967.73	1,161,963,244.95	1,772,797,324.21	822,322,720.78	759,783,931.54	\$2.05	566,811,339.00
Alcoa	T-0 2005	0.042200855	0.254392213	0.065438034	1.44826397	3.066576979	1938121848	11,683,249,284.45	3,005,315,524.06	45,926,127,845.17	37,421,546,059.00	25,838,898,732.45	11,980,373,449.64	10,042,251,601.47	\$43.00	870,268,513.00
	T-1	0.036646325	0.259774909	0.073047318	1.488818832	3.141403844	1541338837	10,926,093,125.24	3,072,359,086.81	42,059,847,800.85	34,360,164,274.35	23,078,808,203.28	9,664,645,943.51	8,123,307,106.93	\$39.45	870,980,083.00
	T-2	0.052221627	0.229604869	0.05868626	1.81568478	3.391926432	2208000000	9,708,000,000.00	2,481,333,333.33	42,281,333,333.33	24,394,666,666.67	8,986,666,666.67	6,778,666,666.67	\$51.00	868,490,866.00	
	T-3	0.062126803	0.190338812	0.048305938	1.723967952	3.162838607	3270929000	10,021,193,924.41	2,543,270,929.00	52,649,240,551.04	56,602,903,954.00	32,832,921,229.25	11,149,770,399.15	7,878,841,398.80	\$67.00	844,819,462.00
	T-4	0.063092929	0.219538	0.090918709	1.700226336	3.525794873	3503721112	12,191,539,365.45	5,048,962,005.48	55,532,706,619.66	54,702,934,277.04	32,173,913,043.48	13,301,997,649.82	9,798,276,537.41	\$64.54	887,581,876.00
	T-5	-0.011864567	0.196617336	0.102205674	1.370926332	2.68943573	-678700361	11,247,292,418.77	5,846,570,397.11	57,203,971,119.13	46,411,053,000.00	33,853,790,613.72	13,678,700,361.01	14,357,400,722.02	\$57.00	814,229,000.00
	T-6	0.105297082	0.355150592	0.19770304	#VALUE!	#VALUE!	2748546956	9,270,419,088.41	3,126,338,329.76	26,102,783,725.91	#VALUE!	14,209,238,299.17	7,341,694,707.86	4,593,147,751.61	\$--	367,748,998.00
	T-7	0.100604152	0.303799571	0.103249821	#VALUE!	#VALUE!	2861703861	8,641,635,445.51	2,936,960,417.01	28,445,186,512.46	#VALUE!	16,176,250,203.62	8,185,535,103.44	5,323,831,242.87	\$--	366,809,078.00
Amadeus energy	T-0 2006	0.131041104	0.124720208	0.110840512	1.821384329	3.923519306	25935000	24,684,000.00	21,937,000.00	197,915,000.00	211,032,873.84	115,864,000.00	29,205,000.00	3,270,000.00	\$1.14	185,116,556.00
	T-1	0.107048468	0.343096783	0.359128934	19.66505757	24.88239035	4901000	15,708,000.00	16,442,000.00	45,783,000.00	129,120,768.00	6,566,000.00	5,912,000.00	1,011,000.00	\$0.84	153,715,200.00
	T-2	0.120293785	0.159625219	0.135943989	10.03662817	12.76150863	3505000	4,651,000.00	3,961,000.00	29,137,000.00	62,769,072.60	6,254,000.00	5,508,000.00	2,003,000.00	\$0.52	120,709,755.00
	T-3	0.03008463	0.051378651	0.139230139	1.118054967	2.474433828	551000	941,000.00	2,550,000.00	18,315,000.00	7,590,475.17	6,789,000.00	2,719,000.00	2,168,000.00	\$0.09	84,338,613.00
	T-4	-0.027360613	-0.103544719	0.046513042	1.810812947	1.69687983	-450000	-1,703,000.00	765,000.00	16,447,000.00	10,120,633.56	5,589,000.00	1,907,000.00	2,357,000.00	\$0.12	84,338,613.00
	T-5	-0.016843835	-0.045652955	0.08283264	1.536254652	1.910378534	-328000	-889,000.00	1,613,000.00	19,473,000.00	10,140,816.96	6,601,000.00	1,743,000.00	2,071,000.00	\$0.12	84,506,808.00
	T-6	0.080578718	-0.102821815	-0.029853075	1.194865011	1.24739287	1485427	-1,895,467.00	-550,326.00	18,434,483.00	10,140,816.96	8,486,998.00	3,545,704.00	2,060,277.00	\$0.12	84,506,808.00
	T-7	-0.096290906	-0.092208047	-0.034285047	0.863083411	-0.256424515	-1484813	-1,421,855.00	-528,678.00	15,420,075.00	8,965,324.68	10,387,553.00	1,204,835.00	2,689,648.00	\$0.17	52,737,204.00
	T-8	-0.052831062	0.018212174	0.037251947	0.542906493	0.533184822	-969678	334,272.00	683,734.00	18,354,316.00	6,403,208.56	11,794,312.00	1,600,556.00	2,570,234.00	\$0.14	45,737,204.00
T-9	0.131487832	0.001413398	-0.048721211	16.36072604	17.71852367	708141	7,612.00	-262,393.00	5,385,601.00	7,980,696.72	487,796.00	1,195,937.00	487,796.00	\$0.18	44,337,204.00	
BHP	T-0 2006	-0.001751999	0.43466073	0.295469536	5.375262874	9.035082164	-114354903.8	28,370,778,958.70	19,285,618,189.16	65,271,088,389.61	174,000,000,000.00	32,370,509,888.34	11,806,807,480.16	11,921,162,383.96	\$29.00	6,000,000,000.00
	T-1	0.003870815	0.332985039	0.214082166	3.535116736	6.261248498	213434594.7	18,360,612,806.08	11,804,373,445.07	55,139,452,664.66	109,918,661,798.55	31,093,361,267.51	10,242,241,717.95	10,028,807,123.22	\$18.15	6,056,124,617.00
	T-2	0.052182559	0.350492319	0.168414638	3.412239723	6.199520621	2361736101	15,862,969,952.10	7,622,296,414.57	45,259,108,724.05	78,032,260,999.21	22,868,340,833.21	9,658,876,469.73	7,297,140,368.70	\$12.53	6,227,634,557.00
	T-3	0.021435745	0.296360425	0.112477058	2.211167128	4.184324785	927479772.3	12,822,894,815.70	4,866,646,688.64	43,267,905,304.17	53,394,020,734.43	24,147,437,818.40	7,984,716,811.51	7,057,237,039.26	\$8.59	6,215,834,777.00
	T-4	-0.010515036	0.249648383	0.106121492	2.097121063	3.659988636	-555949008.5	13,199,362,606.23	5,610,835,694.05	52,871,813,031.16	62,041,069,131.00	29,583,923,512.75	9,785,764,872.52	10,341,713,881.02	\$10.30	6,023,404,770.00
	T-5	0.017338982	0.23316837	0.127105066	1.947569389	3.772966515	959605911.3	12,904,433,497.54	7,034,482,758.62	55,343,842,364.53	62,583,175,560.30	32,133,990,147.78	11,274,876,847.29	10,315,270,935.96	\$10.39	6,023,404,770.00
	T-6	-0.02528626	0.096817067	0.122410033	1.918561073	2.98683032	-742000000	2,841,000,000.00	3,592,000,000.00	29,344,000,000.00	35,184,491,509.75	18,339,000,000.00	6,081,000,000.00	6,823,000,000.00	\$19.75	1,781,493,241.00
	T-7	-0.010861625	0.057992187	0.047352878	1.219388976	1.716372031	-342000000	1,826,000,000.00	1,491,000,064.00	31,487,000,000.00	26,980,200,483.84	22,126,000,000.00	5,852,000,000.00	6,194,000,000.00	\$15.48	1,742,907,008.00
	T-8	0.028126854	0.07386833	0.071427506	1.132914931	2.093655033	1043000000	2,739,000,000.00	2,642,000,000.00	37,082,000,000.00	27,952,410,101.76	24,673,000,000.00	7,218,000,000.00	6,175,000,000.00	\$13.68	2,042,304,832.00
T-9	0.029154757	0.135837757	0.086293725	1.829798604	3.135268662	1071000000	4,990,000,000.00	3,170,000,000.00	36,735,000,000.00	37,551,126,946.56	20,522,000,000.00	8,399,000,000.00	7,328,000,000.00	\$18.89	1,987,883,904.00	
Bluescope Steel	T-0 2006	0.066316833	0.20206319	0.09898631	1.330533491	3.156012594	481500000	1,467,100,000.00	718,700,000.00	7,260,800,000.00	5,555,908,698.00	4,175,700,000.00	2,741,500,000.00	2,260,000,000.00	\$7.95	698,856,440.00
	T-1	0.110726055	0.284821387	0.214737689	1.966239293	5.162469169	715700000	1,841,000,000.00	1,388,000,000.00	6,463,700,000.00	5,826,360,273.30	2,963,200,				

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Cabcharge	T-7	0.015296705	0.17519151	0.136557856	4.171306327	5.969011144	605000000	692,899,968.00	540,100,000.00	3,955,100,160.00	9,026,289,760.00	2,163,900,000.00	755,600,000.00	695,100,000.00	\$39.80	228,791,200.00
	T-8	0.033067044	0.138765287	0.120411568	3.140825209	4.776326854	1308000000	548,899,968.00	476,300,000.00	3,955,600,000.00	7,111,770,420.16	2,264,299,968.00	895,300,000.00	764,500,000.00	\$31.69	224,416,864.00
	T-9	0.021227091	0.127649396	0.135266925	3.47644342	5.114646074	666000000	400,500,000.00	424,400,000.00	3,137,500,160.00	5,819,218,752.00	1,673,900,032.00	659,100,000.00	592,500,000.00	\$26.16	222,447,200.00
	T-0 2006	0.239285121	0.364603093	0.231444006	9.911031702	14.72020349	54747000	83,419,000.00	52,953,000.00	228,794,000.00	713,802,414.24	72,021,000.00	92,812,000.00	38,065,000.00	\$6.36	112,233,084.00
	T-1	0.38815031	0.385964596	0.217874814	17.69369242	23.84700641	64641000	64,277,000.00	36,284,000.00	166,536,000.00	505,048,756.50	28,544,000.00	90,186,000.00	25,545,000.00	\$4.50	112,233,057.00
	T-2	0.410374738	0.341847428	0.193214818	12.16984108	17.8832176	65005000	54,150,000.00	30,606,000.00	158,404,000.00	385,479,716.08	31,675,000.00	93,479,000.00	28,474,000.00	\$3.44	112,058,057.00
	T-3	0.495952701	0.316764375	0.180200223	13.23644632	19.39531571	72294446	46,174,373.00	26,267,576.00	145,768,832.00	332,890,549.30	25,149,541.00	95,639,852.00	23,345,406.00	\$2.95	112,844,254.00
	T-4	0.412870082	0.22966056	0.153770636	8.811437013	13.7424687	56892172	31,646,488.00	21,189,100.00	137,796,790.00	302,176,354.56	34,293,652.00	89,712,779.00	32,820,607.00	\$2.72	111,094,248.00
	T-5	0.598543471	0.241351997	0.154937551	27.84945413	34.99635985	66084443	26,647,375.00	17,106,463.00	110,408,761.00	401,419,831.68	14,413,921.00	80,051,412.00	13,966,969.00	\$3.68	109,081,476.00
	T-6	0.657129944	0.22256054	0.13831118	16.72594235	23.52801039	67645603	22,910,601.00	14,237,889.00	102,940,984.00	228,249,401.44	13,646,430.00	81,020,321.00	13,374,718.00	\$2.12	107,664,812.00
T-7	0.75284216	0.197110069	0.10304774	#VALUE!	#VALUE!	70128000	18,361,000.00	9,599,000.00	93,151,000.00	#VALUE!	0	70,128,000.00	0	\$--	107,700,000.00	
T-8	0.462775447	0.178321063	0.135694364	#VALUE!	#VALUE!	36836000	14,194,000.00	10,801,000.00	79,598,000.00	#VALUE!	34,010,000.00	63,337,000.00	26,501,000.00	\$--	107,700,000.00	
T-9	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	0	0	0	11,854,000.00	0	#VALUE!	0	0	0	\$--	107,700,000.00
Caltex	T-0 2005	0.109542906	0.388333054	0.137868428	2.697087201	5.742984614	446776000	1,583,835,000.00	562,303,000.00	4,078,548,000.00	5,232,600,000.00	1,940,093,000.00	1,924,815,000.00	1,478,039,000.00	\$19.38	270,000,000.00
	T-1	0.12483323	0.356514961	0.130449016	1.881417203	4.833250213	409169000	1,168,558,000.00	427,576,000.00	3,277,725,000.00	2,932,200,000.00	1,558,506,000.00	1,492,049,000.00	1,082,880,000.00	\$10.86	270,000,000.00
	T-2	0.101962904	0.242238555	0.122554573	0.804780943	3.127161057	282809000	671,884,000.00	339,923,000.00	2,773,646,000.00	1,247,400,000.00	1,549,987,000.00	1,100,801,000.00	817,992,000.00	\$4.62	270,000,000.00
	T-3	0.087716837	0.171011987	0.0761145021	0.320852764	1.981511475	248866000	485,187,000.00	216,035,000.00	2,837,152,000.00	577,800,000.00	1,800,826,000.00	1,157,793,000.00	908,927,000.00	\$2.14	270,000,000.00
	T-4	0.114302948	0.098291224	0.073339565	0.200477491	1.773599972	314003000	270,017,000.00	201,472,000.00	2,747,112,000.00	386,100,000.00	1,925,902,000.00	1,046,543,000.00	732,540,000.00	\$1.43	270,000,000.00
	T-5	0.116018313	0.043038349	0.036907828	0.262707125	1.425248236	367480000	136,321,000.00	116,903,000.00	3,167,431,000.00	567,000,000.00	2,158,297,000.00	1,303,814,000.00	936,334,000.00	\$2.10	270,000,000.00
	T-6	0.015150221	0.048235327	0.073128506	0.335100001	1.099911178	45059000	143,459,000.00	217,495,000.00	2,974,148,000.00	656,100,000.00	1,957,923,000.00	1,072,992,000.00	1,027,933,000.00	\$2.43	270,000,000.00
	T-7	0.015409774	0.035779172	0.073161708	0.616300462	1.356490383	41942000	97,383,000.00	199,130,000.00	2,721,779,000.00	1,080,000,000.00	1,752,392,000.00	761,153,000.00	719,211,000.00	\$4.00	270,000,000.00
	T-8	0.045584389	0.026999306	0.014495597	0.662544309	1.180133265	131950000	78,156,000.00	41,961,000.00	2,894,741,032.00	1,287,900,000.00	1,943,869,992.00	880,709,992.00	748,754,992.00	\$4.77	270,000,000.00
	T-9	-0.012158094	0.073157302	0.064205938	6.182911121	7.082256291	-11416000	68,692,000.00	60,287,000.00	938,963,000.00	835,200,000.00	135,082,000.00	67,266,000.00	78,682,000.00	\$4.64	180,000,000.00
Capral Aluminium	T-0 2005	0.022108456	-0.103213663	-0.080623373	1.253987567	0.583452804	10278000	-47,983,000.00	-37,481,000.00	464,890,000.00	260,805,588.24	207,981,000.00	184,865,000.00	174,587,000.00	\$1.34	194,631,036.00
	T-1	0.055039965	0.000534236	-0.083505133	1.915566433	1.812994036	16072000	156,000.00	-24,384,000.00	292,006,000.00	234,528,545.09	122,433,000.00	102,766,000.00	86,694,000.00	\$2.41	97,314,749.00
	T-2	0.155079436	0.228951265	-0.01219181	2.172832641	3.963247533	47967000	70,816,000.00	-3,771,000.00	309,306,000.00	217,335,412.04	100,024,000.00	116,778,000.00	68,811,000.00	\$2.68	81,095,303.00
	T-3	0.169320907	0.211805848	0.029027592	2.751776747	4.88566322	46239000	57,841,000.00	7,927,000.00	273,085,000.00	207,371,143.85	75,359,000.00	116,115,000.00	69,876,000.00	\$2.95	70,295,303.00
	T-4	0.195093036	0.186109334	-0.03922373	1.674307284	3.380965923	56115000	53,531,000.00	-11,282,000.00	287,632,000.00	172,877,250.00	103,253,000.00	152,652,000.00	96,537,000.00	\$2.55	67,795,000.00
	T-5	0.521278081	0.232489818	0.146626342	2.822622372	8.126583527	343516000	153,208,000.00	96,625,000.00	658,988,000.00	477,519,962.40	169,176,000.00	509,960,000.00	166,444,000.00	\$2.32	205,827,570.00
	T-6	0.191799526	0.065932487	0.038055461	1.386144253	3.184328964	145530000	50,027,000.00	28,875,000.00	758,761,000.00	403,422,037.20	291,039,000.00	274,630,000.00	129,100,000.00	\$1.96	205,827,570.00
	T-7	0.188745729	0.082638026	0.082488048	1.511503224	3.648970018	147243000	64,467,000.00	64,350,000.00	780,113,016.00	459,980,661.12	304,320,000.00	273,041,000.00	125,798,000.00	\$2.28	201,745,904.00
	T-8	0.131189368	0.10844288	0.093522386	1.781267028	3.71292686	104737000	86,577,000.00	74,665,000.00	798,365,000.00	603,838,820.48	338,993,992.00	261,178,000.00	156,441,000.00	\$3.22	187,527,584.00
	T-9	0.102354136	0.138793227	0.086405318	2.316094206	4.136451705	80009000	108,493,000.00	67,542,000.00	781,688,000.00	734,120,800.00	316,965,000.00	243,179,000.00	163,170,000.00	\$4.00	183,530,200.00
Coffey International	T-0 2006	0.244739194	0.07495747	0.117355324	2.110930997	4.854955791	42439000	12,998,000.00	20,350,000.00	173,405,000.00	224,617,834.60	106,407,000.00	82,052,000.00	39,613,000.00	\$3.10	72,457,366.00
	T-1	0.220150022	0.148168848	0.20504486	5.107101533	8.667572656	14968000	10,074,000.00	13,941,000.00	67,990,000.00	172,773,244.87	33,830,000.00	46,901,000.00	31,933,000.00	\$2.63	65,693,249.00
	T-2	0.177704358	0.178632415	0.199569382	2.337404176	5.543462892	9574000	9,624,000.00	10,752,000.00	53,876,000.00	66,693,153.36	28,533,000.00	37,015,000.00	27,441,000.00	\$5.52	12,082,093.00
	T-3	0.268171192	0.152270842	0.210649108	2.049833225	5.823497636	10345000	5,874,000.00	8,126,000.00	38,576,000.00	42,542,238.75	20,754,000.00	30,207,000.00	19,862,000.00	\$3.75	11,344,597.00
	T-4	0.180930805	0.059182189	0.140739498	0.908580062	3.279618508	6469000	2,116,000.00	5,032,000.00	35,754,000.00	19,606,249.16	21,579,000.00	27,122,000.00	20,653,000.00	\$1.73	11,333,092.00
	T-5	0.121926496	0.016270728	0.056011852	1.14258169	2.428990808	4691000	626,000.00	2,155,000.00	38,474,000.00	29,466,039.20	25,789,000.00	29,340,000.00	24,649,000.00	\$2.60	11,333,092.00
	T-6	0.155169628	0.05721594	0.154011847	0.824510937	3.105132822	5763000	2,125,000.00	5,720,000.00	37,140,000.00	18,939,840.74	22,971,000.00	27,727,000.00	21,964,000.00	\$1.67	11,341,222.00
	T-7	0.329896907	0.080354562	0.124819347	2.801035616	6.205952991	6848000	1,668,000.00	2,591,000.00	20,758,000.00	18,977,016.30	6,775,000.00	12,873,000.00	6,025,000.0		

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Goldstream Mining	T-6	0.096904011	0.125059929	0.117577836	1.171276152	3.063348698	667000000	860,800,000.00	809,300,000.00	6,883,100,000.00	3,588,438,746.50	3,063,700,000.00	1,864,900,000.00	1,197,900,000.00	\$3.46	1,037,121,025.00
	T-7	0.046038204	0.086573336	0.096117505	0.979513214	2.258638205	333800000	627,699,968.00	696,899,968.00	7,250,499,968.00	3,562,587,509.76	3,637,100,000.00	1,534,800,000.00	1,201,000,000.00	\$3.44	1,035,635,904.00
	T-8	0.060597925	0.070572284	0.079794875	1.35351526	2.585000615	451400000	525,700,000.00	594,400,000.00	7,449,099,968.00	5,408,105,571.84	3,995,600,000.00	1,866,400,000.00	1,415,000,000.00	\$5.24	1,032,081,216.00
	T-9	0.058938268	0.109997561	0.061273723	1.194965973	2.411700777	459300032	857,200,000.00	477,500,000.00	7,792,900,064.00	4,923,618,298.88	4,120,300,000.00	1,796,500,032.00	1,337,200,000.00	\$4.88	1,008,938,176.00
	T-0 2006	0.887669498	-1.8141404857	-0.15109146	44.89865879	46.0373872	13940624	-28,490,056.00	-2,372,853.00	15,704,746.00	73,944,499.14	1,646,920.00	15,501,834.00	1,561,210.00	\$0.51	144,989,214.00
	T-1	0.710529748	-3.714323894	-0.448999917	31.79393245	22.91872888	5072582	-26,517,134.00	-3,205,480.00	7,139,155.00	44,510,297.26	1,399,962.00	6,429,200.00	1,356,618.00	\$0.34	130,912,639.00
	T-2	0.592317729	-2.621993147	-0.275575754	15.73895083	10.01193594	5331982	-23,602,907.00	-2,480,704.00	9,001,895.00	48,212,230.95	3,063,243.00	8,366,479.00	3,034,497.00	\$0.39	123,621,105.00
	T-3	0.544849361	-2.801115149	-0.18125951	49.07825773	44.75668314	4170204	-21,439,360.00	-1,387,336.00	7,653,866.00	52,713,337.05	1,074,067.00	5,228,977.00	1,058,773.00	\$0.45	117,140,749.00
	T-4	0.614828404	-2.550576173	-0.274965997	368.6530925	380.9563717	4883855	-20,260,359.00	-2,184,177.00	7,943,444.00	70,284,449.40	190,652.00	5,047,973.00	164,118.00	\$0.60	117,140,749.00
T-5	0.547778054	-3.130400338	-0.539175594	206.3099213	206.3904763	3199255	-18,282,859.00	-3,149,013.00	5,840,422.00	47,368,964.24	229,601.00	3,399,819.00	200,564.00	\$0.52	91,094,162.00	
T-6	0.500568142	-2.060950438	-0.263736572	137.5810668	139.2528389	3716316	-15,300,900.00	-1,958,032.00	7,424,196.00	36,312,871.60	263,938.00	3,941,429.00	225,113.00	\$0.40	90,782,179.00	
T-7	0.404131224	-2.06454783	-0.356350981	99.50327142	98.0044313	2464657	-13,520,732.00	-2,333,744.00	6,549,004.00	31,662,936.00	318,210.00	2,873,383.00	226,726.00	\$0.36	87,952,600.00	
T-8	0.553137522	-1.291302344	-0.306462124	38.16677623	37.43462607	4864324	-11,355,789.00	-2,695,046.00	8,794,059.00	18,810,572.00	492,852.00	5,181,659.00	317,335.00	\$0.22	85,502,600.00	
T-9	0.707353745	-0.82118016	-0.125153311	67.80822658	72.32080091	7727631	-8,971,151.00	-1,367,263.00	10,924,705.00	38,641,196.00	569,860.00	8,112,344.00	384,713.00	\$0.46	84,002,600.00	
Hill End Gold	T-0 2006	0.146495162	-0.31797112	-0.095311364	21.94511304	22.32629873	1207362	-2,620,607.00	-785,523.00	8,241,651.00	12,433,771.87	566,585.00	1,673,947.00	466,585.00	\$0.13	95,644,399.00
	T-1	0.036581772	-0.337924237	-0.115371872	7.536996837	6.276891108	207896	-1,920,440.00	-655,664.00	5,683,049.00	4,176,770.00	554,169.00	340,865.00	132,969.00	\$0.08	52,209,625.00
	T-2	0.1254537	-0.249495527	-0.1034667	14.20543544	14.23003184	654160	-1,300,958.00	-539,512.00	5,214,354.00	5,909,347.50	415,992.00	1,070,152.00	415,992.00	\$0.14	42,209,625.00
	T-3	-0.124978458	-0.543376081	-0.191879922	#VALUE!	#VALUE!	-200884	-873,395.00	-308,418.00	1,607,349.00	#VALUE!	243,334.00	42,450.00	243,334.00	\$--	20,484,122.00
	T-4	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#DIV/0!	0	0	-212,600.00	0	#VALUE!	0	0	0	0	\$--
Hills Industries	T-0 2006	0.237631932	0.189016956	0.117842058	2.734831338	5.838532286	147741000	117,516,000.00	73,265,000.00	621,722,000.00	813,095,440.00	297,311,000.00	316,792,000.00	169,051,000.00	\$4.82	168,692,000.00
	T-1	0.24559759	0.182229498	0.109836643	2.642305402	5.717916642	143052000	106,179,000.00	63,976,000.00	582,465,000.00	713,620,631.52	270,075,000.00	309,461,000.00	166,409,000.00	\$4.32	165,189,961.00
	T-2	0.271692639	0.227385811	0.135681632	2.790097791	6.364964702	116307000	97,340,000.00	58,083,000.00	428,083,000.00	540,581,447.02	193,750,000.00	230,329,000.00	114,022,000.00	\$3.86	140,047,007.00
	T-3	0.234251927	0.235021786	0.147532784	2.683812587	6.112287195	89458000	89,752,000.00	56,341,000.00	381,888,000.00	471,747,157.44	175,775,000.00	198,930,000.00	109,472,000.00	\$3.48	135,559,528.00
	T-4	0.188763074	0.206371308	0.12697954	2.241140909	5.117556693	64664000	70,696,000.00	43,499,000.00	342,567,000.00	419,118,002.46	187,011,000.00	187,616,000.00	122,952,000.00	\$3.33	125,861,262.00
	T-5	0.190989459	0.222428785	0.122932447	1.97722926	4.880205457	57942000	67,480,000.00	37,295,000.00	303,378,000.00	326,679,795.50	165,221,000.00	165,989,000.00	108,047,000.00	\$2.71	120,546,050.00
	T-6	0.168767413	0.243026307	0.140699238	1.903095867	4.843129529	43797000	63,068,000.00	36,513,000.00	259,511,000.00	268,661,946.63	141,171,000.00	145,630,000.00	101,833,000.00	\$2.31	116,303,873.00
	T-7	0.165751269	0.288287703	0.138772175	2.496917298	5.581458412	35701000	62,094,000.00	29,890,000.00	215,389,000.00	269,167,684.72	107,800,000.00	113,007,000.00	77,306,000.00	\$2.42	111,226,316.00
	T-8	0.06847847	0.292728758	0.129964437	2.419816582	4.81768294	14249000	60,911,000.00	27,043,000.00	208,080,000.00	242,092,969.80	100,046,000.00	103,909,000.00	89,660,000.00	\$2.20	110,042,259.00
T-9	0.100145922	0.303113844	0.13106725	2.462083954	5.111068455	19834000	60,032,000.00	25,958,000.00	198,051,000.00	235,926,732.80	95,824,000.00	107,219,000.00	87,385,000.00	\$2.20	107,239,424.00	
Iluka Resources	T-0 2005	0.045642263	0.011048538	0.116063288	1.648951143	2.846775477	85100000	20,600,000.00	216,400,000.00	1,864,500,000.00	1,826,048,496.16	1,107,400,000.00	453,000,000.00	367,900,000.00	\$7.84	232,914,349.00
	T-1	0.096924002	0.156968803	0.08206305	1.739528919	3.525508807	177400000	287,300,000.00	150,200,000.00	1,830,300,000.00	1,465,031,255.21	842,200,000.00	408,400,000.00	231,000,000.00	\$6.29	232,914,349.00
	T-2	0.063928777	0.143136129	0.065249856	1.318476061	2.708875452	111300000	249,200,000.00	113,600,000.00	1,741,000,000.00	1,054,649,000.97	799,900,000.00	410,400,000.00	299,100,000.00	\$4.53	232,814,349.00
	T-3	0.093412339	0.108806785	0.07459045	1.271303425	2.80361148	160800000	187,300,000.00	128,400,000.00	1,721,400,000.00	1,070,946,005.40	842,400,000.00	418,100,000.00	257,300,000.00	\$4.60	232,814,349.00
	T-4	0.151178387	0.082646739	0.083604777	1.196085354	3.078872314	236700000	129,400,000.00	130,900,000.00	1,565,700,000.00	967,035,009.10	808,500,000.00	457,500,000.00	220,800,000.00	\$4.45	217,311,238.00
	T-5	0.10697555	0.072899955	0.090290701	1.115293525	2.717225178	166700000	113,600,000.00	140,700,000.00	1,558,300,000.00	896,138,347.32	803,500,000.00	408,000,000.00	241,300,000.00	\$4.14	216,458,538.00
	T-6	0.11156489	0.046350318	0.061649164	1.117693676	2.470828457	172100000	71,500,000.00	95,100,000.00	1,542,600,000.00	912,932,194.90	816,800,000.00	397,000,000.00	224,900,000.00	\$4.10	222,666,389.00
	T-7	0.105578856	0.015016778	0.016275167	0.592809866	1.473371477	251700000	35,800,000.00	38,800,000.00	2,384,000,064.00	879,492,716.80	1,483,600,000.00	551,000,000.00	299,300,000.00	\$3.95	222,656,384.00
	T-8	0.108859199	0.171233207	0.077918984	2.214917223	4.121615259	39258000	61,752,000.00	28,100,000.00	360,630,984.00	298,954,022.40	134,973,000.00	75,109,000.00	35,851,000.00	\$3.60	83,042,784.00
T-9	0.097647187	0.199441705	0.125659803	4.830621071	7.207331504	26935000	55,014,000.00	34,662,000.00	275,840,000.00	321,226,640.00	66,498,000.00	65,830,000.00	38,895,000.00	\$4.00	80,306,660.00	
James Hardie	T-0 2006	0.104330981	-0.199460357	0.215511277	2.328276286	3.927096354	210643944.7	-402,709,875.68	435,116,636.40	2,018,997,066.63	4,392,145,724.28	1,886,436,653.16	917,446,570.75	706,802,626.07	\$9.48	463,306,511.00
	T-1	0.165488107	0.219946735	0.205161172	4.58212373	7.992541332	233117723.2	309,831,824.06	289,003,880.98	1,408,667,529.11	2,751,645,324.24	600,517,464.42	489,780,077.62	256,662,354.46	\$5.99	459,373,176.00
	T-2	0.201709226														

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Leighton Holdings	T-0 2006	0.041204557	0.16148441	0.098318508	1.78614607	3.332894821	159080000	623,449,000.00	379,582,000.00	3,860,738,000.00	4,822,858,737.45	2,700,148,000.00	2,467,629,000.00	2,308,549,000.00	\$17.35	277,974,567.00
	T-1	-0.031362434	0.132716354	0.070202146	1.468713229	2.240825056	-135478000	573,302,000.00	303,256,000.00	4,319,754,000.00	3,135,912,770.50	2,135,143,000.00	1,739,818,000.00	1,875,296,000.00	\$11.50	272,688,067.00
	T-2	-0.051958863	0.180712256	0.059979241	1.312216263	2.029159391	-142621000	496,034,000.00	164,636,000.00	2,744,883,000.00	2,478,734,529.03	1,888,968,000.00	1,738,187,000.00	1,880,808,000.00	\$9.09	272,688,067.00
	T-3	0.095925783	0.234705617	0.102602235	2.101432538	4.290404631	207442000	507,557,000.00	221,880,000.00	2,162,526,000.00	2,714,802,870.00	1,291,882,000.00	1,310,213,000.00	1,102,771,000.00	\$10.00	271,480,287.00
	T-4	0.043623321	0.179014865	0.097081079	1.83378299	3.447614436	101109000	414,916,000.00	225,012,000.00	2,317,774,000.00	2,793,269,595.63	1,523,228,000.00	1,419,375,000.00	1,318,266,000.00	\$10.39	268,842,117.00
	T-5	0.090208081	0.175239494	0.094541889	1.690437949	3.573327106	184941000	359,269,000.00	193,826,000.00	2,050,160,000.00	2,214,255,646.95	1,309,871,000.00	1,275,687,000.00	1,090,746,000.00	\$8.35	265,180,317.00
	T-6	0.146026678	0.169131121	0.112327902	1.352129767	3.683882218	252527000	292,482,000.00	194,251,000.00	1,729,321,000.00	1,412,206,244.46	1,044,431,000.00	1,079,074,000.00	826,547,000.00	\$5.38	262,491,867.00
	T-7	0.093904531	0.156831817	0.111861468	1.637262071	3.598119684	147992976	247,166,000.00	176,293,000.00	1,575,993,984.00	1,544,128,081.60	943,116,016.00	860,124,992.00	712,132,016.00	\$5.90	261,716,624.00
	T-8	0.120377264	0.123300592	0.094348157	1.396666624	3.292154351	198479000	203,299,008.00	155,562,000.00	1,648,808,040.00	1,477,972,163.84	1,058,213,992.00	862,008,992.00	663,529,992.00	\$5.66	261,125,824.00
	T-9	0.09351607	0.103788362	0.093153119	1.549488992	3.204767882	151759000	168,429,000.00	151,170,000.00	1,622,812,000.00	1,673,316,405.00	1,079,915,000.00	874,139,000.00	722,380,000.00	\$6.45	259,428,900.00
John Shearer	T-0 2006	0.30749354	0.580640032	0.10546611	3.618300236	8.417991635	15470000	29,212,000.00	5,306,000.00	50,310,000.00	38,252,670.10	10,572,000.00	22,599,000.00	7,129,000.00	\$3.10	12,339,571.00
	T-1	0.499796118	0.382339749	0.077108139	3.657043031	8.883151992	24514000	18,753,000.00	3,782,000.00	49,048,000.00	38,252,670.10	10,460,000.00	32,394,000.00	7,880,000.00	\$3.10	12,339,571.00
	T-2	0.415168551	0.346039002	0.082205885	2.328806807	6.849263539	20161000	16,804,000.00	3,992,000.00	48,561,000.00	27,764,034.75	11,922,000.00	29,589,000.00	9,428,000.00	\$2.25	12,339,571.00
	T-3	0.404598443	0.336888909	0.069852094	1.727606815	6.035816857	17562000	14,623,000.00	3,032,000.00	43,406,000.00	19,126,335.05	11,071,000.00	26,413,000.00	8,851,000.00	\$1.55	12,339,571.00
	T-4	0.323497241	0.270435818	0.027344984	1.458978356	4.719448239	13309000	11,126,000.00	1,125,000.00	41,141,000.00	17,949,810.72	12,303,000.00	23,950,000.00	10,641,000.00	\$1.52	11,809,086.00
	T-5	0.324251658	0.300540291	0.04350498	1.732934695	5.218787124	12663000	11,737,000.00	1,699,000.00	39,053,000.00	19,729,461.50	11,385,000.00	22,342,000.00	9,679,000.00	\$1.75	11,273,978.00
	T-6	0.320103093	0.278567553	0.064026044	1.637247932	5.157371859	11799000	10,268,000.00	2,360,000.00	36,860,000.00	17,936,051.10	10,955,000.00	21,130,000.00	9,331,000.00	\$1.65	10,870,334.00
	T-7	0.291547436	0.21794519	0.060312569	1.023386321	4.102908598	10596000	7,921,000.00	2,192,000.00	36,344,000.00	13,085,017.50	12,786,000.00	21,820,000.00	11,224,000.00	\$1.25	10,468,014.00
	T-8	0.374232144	0.24547316	0.053920585	4.878010393	8.739462605	9321000	6,114,000.00	1,343,000.00	24,907,000.00	15,395,000.80	3,156,000.00	12,395,000.00	3,074,000.00	\$1.52	10,128,290.00
	T-9	0.324165113	0.203127649	0.084378708	5.919129341	9.570830002	7649000	4,793,000.00	1,991,000.00	23,596,000.00	18,781,397.40	3,173,000.00	10,770,000.00	3,121,000.00	\$1.90	9,884,946.00
Kimberley Diamond	T-0 2006	0.020969204	-0.429127924	-0.076453677	6.027794886	4.554016871	4048000	-82,841,000.00	-14,759,000.00	193,045,000.00	409,468,106.60	67,930,000.00	36,346,000.00	32,298,000.00	\$1.24	330,216,215.00
	T-1	-0.063743493	-0.698517123	-0.030626257	12.81667221	10.55637423	-5988000	-65,618,000.00	-2,877,000.00	93,939,000.00	279,352,187.40	21,796,000.00	15,301,000.00	21,289,000.00	\$1.10	253,956,534.00
	T-2	0.03458744	-1.270688713	-0.091093076	38.02476057	35.39830153	1709000	-62,786,000.00	-4,501,000.00	49,411,000.00	288,836,081.31	7,596,000.00	8,597,000.00	6,888,000.00	\$1.29	223,903,939.00
	T-3	-0.153585398	-1.895208605	-0.02982399	3.704377047	-3.496721572	-4712000	-58,145,000.00	-915,000.00	30,680,000.00	61,237,056.96	16,531,000.00	3,209,000.00	7,921,000.00	\$0.36	170,102,936.00
	T-4	-0.269912261	-0.97058165	-0.118338512	2.763414589	-2.828370096	-10615707	-38,173,184.00	-4,654,279.00	39,330,214.00	54,473,577.95	19,712,416.00	1,846,881.00	12,462,588.00	\$0.55	99,042,869.00
	T-5	0.354116018	-3.670115214	-1.797525982	48.57215304	29.27981157	3151180	-32,659,335.00	-15,995,684.00	8,898,722.00	44,009,042.12	906,055.00	4,057,235.00	906,055.00	\$0.62	70,982,326.00
	T-6	-0.04206634	-1.194433694	-0.062790607	11.42136587	7.400672251	-590884	-16,777,589.00	-881,987.00	14,046,480.00	7,110,702.54	622,579.00	31,695.00	622,579.00	\$0.17	41,827,662.00
	T-7	-0.023737393	-1.643231768	-0.074918929	43.13657009	39.27731414	-229878	-15,915,822.00	-725,641.00	9,685,683.00	13,239,131.00	306,912.00	77,034.00	306,912.00	\$0.50	26,478,262.00
	T-8	0.086384333	-1.69338973	-0.517086298	8.630406007	0.633337085	776093	-15,213,730.00	-4,645,600.00	8,984,187.00	3,114,756.68	360,905.00	1,136,998.00	360,905.00	\$0.14	22,248,262.00
	T-9	-0.994319857	-0.711407584	-0.115406447	0.786744929	-8.791376129	-21033360	-15,048,771.00	-2,441,252.00	21,153,515.00	17,474,537.16	22,211,185.00	1,177,825.00	22,211,185.00	\$0.27	64,720,508.00
Macquarie Infrastruct	T-0 2006	0.041547748	0.092361952	0.037955337	1.360991982	2.257754636	528320000	1,174,472,000.00	482,639,000.00	12,715,972,000.00	8,317,676,640.00	6,111,481,000.00	1,347,382,000.00	819,062,000.00	\$3.36	2,475,499,000.00
	T-1	0.041547748	0.087301545	0.037955337	1.190223843	2.061951161	528320000	1,110,124,000.00	482,639,000.00	12,715,972,000.00	7,274,030,400.00	6,111,481,000.00	1,347,382,000.00	819,062,000.00	\$3.36	2,164,890,000.00
	T-2	0.063667746	0.055699342	0.0711190496	1.262943063	2.403730616	789750000	690,908,000.00	883,064,000.00	12,404,240,000.00	6,486,574,080.00	5,136,078,000.00	1,406,082,000.00	616,332,000.00	\$3.36	1,930,528,000.00
	T-3	0.063667746	0.087631407	0.0711190496	1.539960736	2.798697706	789750000	1,087,001,000.00	883,064,000.00	12,404,240,000.00	7,909,358,458.56	5,136,078,000.00	1,406,082,000.00	616,332,000.00	\$4.16	1,901,288,091.00
	T-4	0.012283778	0.059665862	-0.009490546	1.642575579	1.936020185	140669000	683,270,000.00	-108,682,000.00	11,451,607,000.00	7,833,687,680.00	4,769,149,000.00	552,100,000.00	411,431,000.00	\$4.16	1,883,098,000.00
	T-5	0.012283778	0.024617244	-0.009490546	0.840803832	0.979901355	140669000	281,907,000.00	-108,682,000.00	11,451,607,000.00	4,009,918,752.32	4,769,149,000.00	552,100,000.00	411,431,000.00	\$4.16	963,922,777.00
	T-6	-0.00183166	0.022207884	0.070950047	0.714481403	1.287371805	-18994000	230,292,000.00	735,740,000.00	10,369,831,000.00	2,905,122,108.90	4,066,057,000.00	465,659,000.00	484,653,000.00	\$3.30	880,340,033.00
	T-7	-0.00183166	0.018208494	0.070950047	0.453798029	1.000616253	-18994000	188,819,008.00	735,740,000.00	10,369,831,000.00	1,845,168,652.80	4,066,057,000.00	465,659,000.00	484,653,000.00	\$3.30	559,142,016.00
	T-8	0.036683436	0	0.086071049	0.579378347	1.427388051	301944000	0	708,457,000.00	8,231,072,000.00	1,597,197,782.40	2,756,744,000.00	702,866,000.00	400,922,000.00	\$3.30	483,999,328.00
	T-9	0.036683436	0	0.086071049	0.465719595	1.308046361	301944000	0	708,457,000.00	8,231,072,000.00	1,283,869,700.48	2,756,744,000.00	702,866,000.00	400,922,000.00	\$3.59	357,623,872.00
Macquarie Airports	T-0 2005	-0.04														

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
	T-2	-0.155693479	-0.450750695	-0.155028521	1.686626492	-1.761630335	-8218552	-23,793,662.00	-8,183,451.00	52,786,745.00	49,566,189.74	29,387,769.00	9,491,469.00	17,710,021.00	\$0.17	291,565,822.00
	T-3	0.27751848	-0.50302755	-0.032588345	6.709845193	7.006995191	7067645	-12,810,751.00	-829,937.00	25,467,295.00	30,307,431.36	4,516,860.00	7,761,640.00	693,995.00	\$0.12	252,561,928.00
	T-4	0.036815724	-0.018597471	-0.018409317	5.658029775	5.998104046	910834	-460,108.00	-455,453.00	24,740,353.00	22,473,371.76	3,971,943.00	4,806,231.00	3,895,397.00	\$0.19	118,280,904.00
Midas Resources	T-0 2006	0.065058617	-0.449904459	-0.191695165	6.945640707	4.964827228	656570	-4,540,425.00	-1,934,583.00	10,091,976.00	6,835,857.91	984,194.00	1,640,764.00	984,194.00	\$0.07	97,655,113.00
	T-1	0.09971704	-0.283910247	-0.132979679	43.88130072	44.91033869	890604	-2,535,691.00	-1,187,683.00	8,931,312.00	4,912,994.31	111,961.00	1,002,565.00	111,961.00	\$0.07	70,185,633.00
	T-2	0.125392517	-0.160163003	-0.09161156	583.8423406	612.7192714	1109555	-1,417,227.00	-810,639.00	8,848,654.00	7,323,718.32	12,544.00	1,122,099.00	12,544.00	\$0.12	61,030,986.00
	T-3	0.30952083	-0.072253938	-0.037199811	96.8607437	103.248707	2977955	-695,168.00	-357,906.00	9,621,178.00	6,103,098.60	63,009.00	3,040,964.00	63,009.00	\$0.10	61,030,986.00
	T-4	0.386402015	-0.041962987	-0.033499899	#VALUE!	#VALUE!	3810835	-413,854.00	-330,388.00	9,862,358.00	#VALUE!	28,855.00	3,839,690.00	28,855.00	\$--	61,030,986.00
Newcrest Mining	T-0 2006	-0.079291398	0.155409246	0.002084123	1.728645011	1.815565136	-334800000	656,200,000.00	8,800,000.00	4,222,400,000.00	7,021,237,442.40	4,061,700,000.00	617,100,000.00	951,900,000.00	\$21.08	333,075,780.00
	T-1	-0.046350401	0.105608927	0.081014163	3.028674146	3.764749496	-140400000	319,900,000.00	245,400,000.00	3,029,100,000.00	5,745,394,855.64	1,897,000,000.00	358,300,000.00	498,700,000.00	\$17.38	330,575,078.00
	T-2	0.027500529	0.078069073	0.069993339	2.891494622	3.94133324	70555000	200,293,000.00	179,574,000.00	2,565,587,000.00	4,527,545,651.98	1,565,815,000.00	338,678,000.00	268,123,000.00	\$13.78	328,559,191.00
	T-3	-0.042767436	0.05100445	0.049223063	2.62148773	2.969061223	-78650000	93,798,000.00	90,522,000.00	1,839,016,000.00	2,500,870,458.15	953,989,000.00	237,952,000.00	316,602,000.00	\$7.65	326,911,171.00
	T-4	-0.052312191	0.002362664	0.030592541	2.597439379	2.597427533	-71981000	3,251,000.00	42,095,000.00	1,375,989,000.00	2,172,568,427.08	836,427,000.00	161,954,000.00	233,935,000.00	\$7.58	286,618,526.00
	T-5	-0.058997574	0.058059813	0.071565707	1.449090626	1.804717617	-71784000	70,643,000.00	87,076,000.00	1,216,728,000.00	1,113,668,170.00	768,529,000.00	181,135,000.00	252,919,000.00	\$4.49	248,033,000.00
	T-6	0.052110058	0.04113445	0.099729653	1.516887782	2.738855728	58963000	46,544,000.00	112,845,000.00	1,131,509,000.00	1,090,432,984.50	718,862,000.00	202,869,000.00	143,906,000.00	\$4.50	242,318,441.00
	T-7	0.030111187	0.052072658	0.040812635	1.278098626	1.983550718	31967000	55,282,000.00	43,328,000.00	1,061,632,008.00	821,459,538.72	642,719,992.00	123,090,000.00	91,123,000.00	\$3.39	242,318,448.00
	T-8	0.057925917	0.036950792	-0.010493595	0.925091839	1.401283069	52811000	33,688,000.00	-9,567,000.00	911,698,992.00	479,466,789.12	518,291,016.00	116,691,000.00	63,880,000.00	\$1.98	242,154,944.00
	T-9	0.095217443	0.047809867	0.004366713	2.878221242	3.831963204	66746000	33,514,000.00	3,061,000.00	700,985,008.00	886,117,973.76	307,870,000.00	252,134,000.00	185,388,000.00	\$3.66	242,108,736.00
National Hire Group	T-0 2006	0.043013208	0.049921967	0.074444148	0.826915622	1.813438341	20340000	23,607,000.00	35,203,000.00	472,878,000.00	198,577,171.32	240,142,000.00	86,119,000.00	65,779,000.00	\$1.66	119,624,802.00
	T-1	0.074258809	0.041420465	0.048150256	2.730342389	3.812597733	21528000	12,008,000.00	13,959,000.00	289,905,000.00	191,399,731.84	70,101,000.00	68,509,000.00	46,981,000.00	\$0.32	598,124,162.00
	T-2	0.27915735	0.027921619	0.041926562	3.267823283	5.635257639	18976000	1,898,000.00	2,850,000.00	67,976,000.00	73,695,950.68	22,552,000.00	30,114,000.00	11,138,000.00	\$0.44	167,490,797.00
	T-3	-0.082454053	0.027158535	0.054079069	0.332994561	0.260693872	-3118000	1,027,000.00	2,045,000.00	37,815,000.00	7,870,659.44	23,636,000.00	7,038,000.00	10,156,000.00	\$0.28	28,109,498.00
	T-4	-0.10373284	0.024140059	0.033703532	0.20396298	-0.161141972	-4035000	939,000.00	1,311,000.00	38,898,000.00	5,059,709.64	24,807,000.00	6,342,000.00	10,377,000.00	\$0.18	28,109,498.00
	T-5	-0.071009361	0.044453606	0.044696125	0.235593339	0.22682831	-2928000	1,833,000.00	1,843,000.00	41,234,000.00	6,184,089.56	26,249,000.00	6,289,000.00	9,217,000.00	\$0.22	28,109,498.00
	T-6	-0.019330305	0.046990706	0.158068684	0.328755138	1.433779446	-778000	1,891,000.00	6,361,000.00	40,242,000.00	8,286,600.00	25,206,000.00	7,873,000.00	8,651,000.00	\$0.40	20,716,505.00
	T-7	-0.02675515	0.039761566	0.10209292	0.885546847	1.569997536	-813881	1,209,531.00	3,105,626.00	30,419,602.00	14,599,793.90	16,486,755.00	6,054,590.00	6,868,471.00	\$0.71	20,563,090.00
	T-8	-0.056717339	0.028281503	0.103210124	0.893811868	1.352206451	-1470000	733,000.00	2,675,000.00	25,918,000.00	13,571,639.40	15,184,000.00	5,281,000.00	6,751,000.00	\$0.66	20,563,090.00
	T-9	-0.026692088	0.012127953	0.057515094	1.395454088	1.716165253	-504000	229,000.00	1,086,000.00	18,882,000.00	13,875,000.00	9,943,000.00	3,809,000.00	4,313,000.00	\$0.75	18,500,000.00
Nylex	T-0 2006	-0.075805945	-2.824640796	-0.108637802	0.442418583	-9.97112251	-15696000	-584,856,000.00	-22,494,000.00	207,055,000.00	60,667,975.50	137,128,000.00	116,795,000.00	132,491,000.00	\$0.06	1,011,132,925.00
	T-1	0.214007351	-1.802449684	0.101875455	0.886136887	-2.857050959	71444000	-601,728,000.00	34,010,000.00	333,839,000.00	252,873,338.90	285,366,000.00	212,228,000.00	140,784,000.00	\$0.26	972,589,765.00
	T-2	-0.105248946	-1.367991042	0.079009171	0.41039079	-4.188231924	-42485000	-552,206,000.00	31,893,000.00	403,662,000.00	167,824,388.68	408,938,000.00	231,714,000.00	274,199,000.00	\$0.26	645,478,418.00
	T-3	0.224328568	-0.758742704	0.066083209	0.112820465	-0.439365161	134594000	-455,235,000.00	39,649,000.00	599,986,000.00	68,426,853.04	606,511,000.00	326,716,000.00	192,122,000.00	\$0.28	244,381,618.00
	T-4	0.174877909	-0.49433019	-0.104193171	0.054869159	-1.106882833	136360000	-385,451,000.00	-81,244,000.00	779,744,000.00	39,090,818.88	712,437,000.00	354,321,000.00	217,961,000.00	\$0.16	244,317,618.00
	T-5	0.192974414	-0.243230544	0.047574498	0.181029577	0.982762262	185229000	-233,468,000.00	45,665,000.00	959,863,000.00	134,162,829.90	741,110,000.00	415,528,000.00	230,299,000.00	\$0.55	243,932,418.00
	T-6	0.142705374	0.045319013	0.101466463	0.672255559	2.471610207	174355000	55,370,000.00	123,970,000.00	1,221,783,000.00	483,244,857.95	718,841,000.00	416,583,000.00	242,228,000.00	\$2.05	235,729,199.00
	T-7	0.106764498	0.00654739	0.11969385	1.056827225	2.714320812	112418000	32,278,000.00	126,032,000.00	1,052,953,016.00	678,904,761.12	642,399,008.00	323,597,000.00	211,179,000.00	\$3.07	221,141,616.00
	T-8	0.05451627	0.000296447	0.08371577	0.93103273	1.898747485	52779000	287,000.00	81,048,000.00	968,133,008.00	552,141,520.00	593,042,008.00	265,546,000.00	212,767,000.00	\$2.50	220,856,608.00
	T-9	-0.067577402	0.042888026	0.094364358	2.748039456	3.216077124	-25258000	16,030,000.00	35,270,000.00	373,764,000.00	530,055,590.40	192,885,000.00	87,861,000.00	113,119,000.00	\$3.36	157,754,640.00
Newmont Mining	T-0 2005	0.120497427	0.053887936	0.077586168	5.08656905	6.828414344	2297941938	1,027,667,984.19	1,479,604,282.02	19,070,464,767.62	32,480,000,000.00	6,385,443,641.82	4,137,931,034.48	1,839,989,096.36	\$7.25	4,480,000,000.00
	T-1	0.126864269	0.059314659	0.087881561	4.852315598	6.711090862	2089699471	977,026,957.31	1,447,579,001.68	16,471,930,865.47	25,397,319,000.00	5,234,061,653.55	3,509,801,367.21	1,420,101,896.04	\$5.70	4,455,670,000.00
	T-2	0.138137928	0.029285605	0.074406256	6.570423597	8.400610695	2035264000	431,481,333.33	1,096,269,333.33	14,733,56						

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
	T-4	0.371162841	0.294033504	0.113091483	1.340752966	5.561142839	68242000	54,061,000.00	20,793,000.00	183,860,000.00	150,285,000.00	112,090,000.00	94,455,000.00	26,213,000.00	\$2.33	64,500,000.00
	T-5	0.32901918	0.282234997	0.119922909	1.104120279	5.043660151	54480375	46,733,654.00	19,857,338.00	165,584,192.00	111,585,000.00	101,062,359.00	84,197,039.00	29,716,664.00	\$1.73	64,500,000.00
	T-6	0.353395839	0.282536375	0.128960989	1.275244616	5.444969978	49684380	39,722,156.00	18,130,793.00	140,591,299.00	106,425,000.00	83,454,577.00	71,379,559.00	21,695,179.00	\$1.65	64,500,000.00
	T-7	0.738729223	0	0.192831888	#VALUE!	#VALUE!	50354000		0	13,144,000.00	68,163,000.00	#VALUE!	81,852,000.00	68,163,000.00	17,809,000.00	\$--
Orica	T-0 2006	0.206621125	0.237852514	0.033631109	2.284965617	4.75604872	1179600000	1,357,900,000.00	192,000,000.00	5,709,000,000.00	6,948,123,449.19	3,040,800,000.00	2,479,700,000.00	1,300,100,000.00	\$22.47	309,217,777.00
	T-1	0.138654616	0.223015145	0.125992707	2.03592115	4.620991855	619800000	996,900,000.00	563,200,000.00	4,470,100,000.00	5,735,189,880.00	2,817,000,000.00	1,792,500,000.00	1,172,700,000.00	\$21.00	273,104,280.00
	T-2	0.07772133	0.229022705	0.130113404	1.857359286	4.081055267	322800000	951,200,000.00	540,400,000.00	4,153,300,000.00	4,672,001,548.90	2,515,400,000.00	1,709,600,000.00	1,386,800,000.00	\$17.30	270,057,893.00
	T-3	0.120861812	0.219309769	0.12361826	1.686930261	4.110058874	429700000	780,000,000.00	439,500,000.00	3,555,300,000.00	3,331,349,880.00	1,974,800,000.00	1,282,600,000.00	852,900,000.00	\$12.00	277,612,490.00
	T-4	0.113544514	0.217906811	0.121835255	1.419976555	3.764936514	382100000	733,300,000.00	410,000,000.00	3,365,200,000.00	2,656,918,131.28	1,871,100,000.00	1,270,300,000.00	888,200,000.00	\$9.52	279,088,039.00
	T-5	0.065058303	0.172228924	0.040584372	0.516931656	1.803753979	242700000	642,500,000.00	151,400,000.00	3,730,500,000.00	1,203,313,508.18	2,327,800,000.00	1,433,900,000.00	1,191,200,000.00	\$4.34	277,261,177.00
	T-6	0.070795966	0.245746375	0.078534909	0.816384161	2.650512676	253400000	879,600,000.00	281,100,000.00	3,579,300,000.00	1,580,111,544.21	1,935,500,000.00	1,364,700,000.00	1,111,300,000.00	\$5.73	275,761,177.00
	T-7	0.07199116	0.244305304	0.086015413	1.166181235	3.071211171	254100000	862,300,000.00	303,600,000.00	3,529,600,000.00	2,253,528,618.00	1,932,400,000.00	1,377,800,000.00	1,123,700,000.00	\$8.25	273,154,984.00
	T-8	0.043345945	0.213001042	0.104238636	1.03304888	2.763917752	158100000	776,900,000.00	380,200,000.00	3,647,400,000.00	2,204,526,310.40	2,134,000,000.00	1,387,500,000.00	1,229,400,000.00	\$8.20	268,844,672.00
	T-9	-0.059157212	0.160757699	0.14812939	1.965155248	3.194841292	-175200000	476,100,000.00	438,700,000.00	2,961,600,000.00	3,501,710,136.00	1,781,900,000.00	1,184,200,000.00	1,359,400,000.00	\$13.14	266,492,400.00
Rio Tinto	T-0 2005	0.090427138	0.399053787	0.240781129	4.883879997	8.640240558	3673163418	16,209,622,461.50	9,780,564,263.32	40,620,144,473.22	93,617,130,000.00	19,168,597,519.42	10,196,265,503.61	6,523,102,085.32	\$69.00	1,356,770,000.00
	T-1	0.031970752	0.362490763	0.135661779	3.433024584	5.907770987	1060234748	12,021,153,102.02	4,498,903,650.20	33,162,646,717.40	53,981,688,000.00	15,724,235,779.70	5,439,184,831.68	4,378,950,083.84	\$39.12	1,379,900,000.00
	T-2	-0.01046682	0.283792201	0.090278643	2.948722567	4.55934544	-336000000	9,112,000,000.00	2,898,666,666.67	32,108,000,000.00	51,272,388,000.00	17,388,000,000.00	5,442,666,666.67	5,778,666,666.67	\$37.20	1,378,290,000.00
	T-3	-0.04792619	0.226590763	0.127541434	2.213012028	3.605031148	-1709000000	8,080,000,000.00	4,548,000,000.00	35,659,000,000.00	46,732,175,000.00	21,117,000,000.00	7,716,000,000.00	9,425,000,000.00	\$33.95	1,376,500,000.00
	T-4	-0.063676662	0.224093872	0.153533246	2.253840381	3.711102934	-2442000000	8,594,000,000.00	5,888,000,000.00	38,350,000,000.00	51,171,192,000.00	22,704,000,000.00	9,112,000,000.00	11,554,000,000.00	\$37.21	1,375,200,000.00
	T-5	-0.109749129	0.232013258	0.139950854	2.000708861	3.077622983	-3841000000	8,120,000,000.00	4,898,000,000.00	34,998,000,000.00	40,462,336,000.00	20,224,000,000.00	7,782,000,000.00	11,623,000,000.00	\$29.44	1,374,400,000.00
	T-6	0.020678281	0.267971922	0.145001691	2.937685177	5.068218793	489000000	6,337,000,000.00	3,429,000,000.00	23,648,000,000.00	34,702,875,000.00	11,813,000,000.00	5,805,000,000.00	5,316,000,000.00	\$32.70	1,061,250,000.00
	T-7	-0.016358599	0.236877064	0.126466011	1.426297241	3.012370519	-4310000000	6,241,000,000.00	3,332,000,000.00	26,347,000,000.00	20,364,672,000.00	14,278,000,000.00	7,366,000,000.00	7,797,000,000.00	\$19.20	1,060,660,000.00
	T-8	0.001094006	0.263225756	0.105688833	0.87000121	2.489022878	280000000	6,737,000,000.00	2,705,000,000.00	25,594,000,000.00	11,499,676,000.00	13,218,000,000.00	7,891,000,000.00	7,863,000,000.00	\$17.90	642,440,000.00
	T-9	0.092023978	0.247197181	0.06850318	1.113976295	3.039556591	2011000000	5,402,000,000.00	1,497,000,000.00	21,853,000,000.00	12,688,190,000.00	11,390,000,000.00	7,419,000,000.00	5,408,000,000.00	\$19.75	642,440,000.00
Qantas	T-0 2006	-0.019647297	0.072380664	0.041880177	0.441674292	0.852267492	-376900000	1,388,500,000.00	803,400,000.00	19,183,300,000.00	5,786,904,914.24	13,102,200,000.00	5,052,800,000.00	5,429,700,000.00	\$2.96	1,955,035,444.00
	T-1	-0.051013543	0.120935901	0.061854817	0.546237564	1.048816007	-925100000	2,193,100,000.00	1,121,700,000.00	18,134,400,000.00	6,395,076,280.76	11,707,500,000.00	3,709,900,000.00	4,635,000,000.00	\$3.37	1,897,648,748.00
	T-2	-0.106303559	0.101074302	0.062489331	0.55350778	0.633262353	-1868200000	1,776,300,000.00	1,098,200,000.00	17,574,200,000.00	6,494,804,940.80	11,733,900,000.00	3,322,000,000.00	5,190,200,000.00	\$3.52	1,845,115,040.00
	T-3	-0.047873782	0.084595082	0.045540775	0.495346477	0.787875763	-812600000	1,435,900,000.00	773,000,000.00	16,973,800,000.00	5,801,349,333.42	11,711,700,000.00	3,954,400,000.00	4,767,000,000.00	\$3.27	1,774,112,946.00
	T-4	-0.123345607	0.083714488	0.042286255	0.682001354	0.464027105	-1825700000	1,239,100,000.00	625,900,000.00	14,801,500,000.00	7,193,750,282.20	10,548,000,000.00	3,755,700,000.00	5,581,400,000.00	\$4.60	1,563,858,757.00
	T-5	-0.212129203	0.086146273	0.045430572	0.497966208	-0.282572766	-2654500000	1,078,000,000.00	568,500,000.00	12,513,600,000.00	4,580,143,792.00	9,197,700,000.00	2,358,800,000.00	5,013,300,000.00	\$3.50	1,308,612,512.00
	T-6	-0.209584329	0.077187664	0.076588019	0.447721174	-0.138462697	-2516500000	926,800,000.00	919,600,000.00	12,007,100,000.00	4,093,380,373.16	9,142,700,000.00	2,437,800,000.00	4,954,300,000.00	\$3.38	1,211,059,282.00
	T-7	-0.150998516	0.100128264	0.062708208	0.736516424	0.530609281	-1695199936	1,124,099,968.00	703,999,968.00	11,226,600,000.00	6,014,908,634.88	8,166,699,936.00	2,384,200,000.00	4,079,399,936.00	\$4.99	1,205,392,512.00
	T-8	-0.106112674	0.105620342	0.056155153	0.386798621	0.431724354	-1099199968	1,094,100,000.00	581,700,000.00	10,358,800,000.00	2,860,917,304.32	7,396,399,968.00	2,108,700,000.00	3,207,899,968.00	\$2.43	1,177,332,224.00
	T-9	-0.105891848	0.095581114	0.052179177	0.475942283	0.467327372	-1049600000	947,400,000.00	517,200,000.00	9,912,000,000.00	3,446,298,073.60	7,241,000,000.00	2,068,200,000.00	3,117,800,000.00	\$3.10	1,111,709,056.00
Steamships Trading	T-0 2005	0.023391724	0.533253149	0.188381999	3.711461661	7.054816757	3378845.57	77,026,388.34	27,211,062.97	144,446,194.91	161,862,997.14	43,611,658.13	43,143,844.91	39,764,999.34	\$5.22	31,008,237.00
	T-1	0.015580639	0.532315527	0.093346013	2.579952207	5.173792633	1857313.02	63,455,456.52	11,127,448.97	119,206,473.08	103,257,429.21	40,023,000.78	39,145,685.30	37,288,372.28	\$3.33	31,008,237.00
	T-2	0.123278508	0.475037968	0.06348596	1.46852159	4.325904111	15779873.43	60,805,724.45	8,126,318.40	128,001,819.91	77,520,592.50	52,788,187.12	53,012,780.74	37,232,907.31	\$2.50	31,008,237.00
	T-3	0.085759582	0.42700115	0.040464422	0.524391903	2.777139025	12538860.11	62,431,597.13	5,916,280.34	146,209,435.51	34,729,225.44	66,227,615.67	58,916,007.64	46,377,147.53	\$1.12	31,008,237.00
	T-4	0.033009528	0.427461973	0.026024456	0.573950902	2.387601323	5298214.84	68,610,0,								

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 7 - Z-scores

Company	Period	X1	X2	X3	X4	Z-score	Company financial data for factor calcs			Total assets	MV Equity	BV Debt total liabs	CA	CL	Share price	No. shares
							Working cap	Ret earnings	EBIT							
Woodside Petroleum	T-5	-0.048735997	0.158397356	0.172174771	1.562358775	2.994158417	-227100000	738,100,000.00	802,300,000.00	4,659,800,000.00	3,669,824,526.06	2,348,900,000.00	536,800,000.00	763,900,000.00	\$6.02	609,605,403.00
	T-6	0.008297416	0.114135571	0.096250029	1.10267892	2.23112607	36000000	495,200,000.00	417,600,000.00	4,338,700,000.00	2,516,313,294.95	2,282,000,000.00	341,700,000.00	305,700,000.00	\$4.15	606,340,553.00
	T-7	0.009324615	0.089303841	0.077878238	1.155418881	2.088831578	39500000	378,300,000.00	329,900,000.00	4,236,099,968.00	2,653,881,665.28	2,296,900,032.00	312,300,000.00	272,800,000.00	\$4.38	605,909,056.00
	T-8	-0.006887666	0.083890786	0.091719932	1.807164206	2.742181227	-27800000	338,600,000.00	370,200,000.00	4,036,200,128.00	3,826,128,000.00	2,117,199,968.00	304,200,000.00	332,000,000.00	\$6.32	605,400,000.00
	T-9	0.029650926	0.333710873	0.113811929	1.476017322	3.597041874	102100000	1,149,100,032.00	391,900,000.00	3,443,400,032.00	2,741,111,769.60	1,857,100,000.00	355,000,000.00	252,900,000.00	\$5.10	537,472,896.00
	T-0 2005	-0.028741019	0.421282275	0.205382203	7.532020701	10.47362927	-200307000	2,936,075,000.00	1,431,386,000.00	6,969,377,000.00	26,126,666,679.73	3,468,746,000.00	732,133,000.00	932,440,000.00	\$39.19	666,666,667.00
	T-1	0.137226716	0.44240749	0.178374676	5.585567563	9.40597944	764289000	2,464,004,000.00	993,464,000.00	5,569,535,000.00	13,400,000,006.70	2,399,040,000.00	1,243,058,000.00	478,769,000.00	\$20.10	666,666,667.00
	T-2	-0.008706064	0.361131749	0.178618694	4.200783846	6.731318381	-41635000	1,727,040,000.00	854,208,000.00	4,782,299,000.00	9,866,666,671.60	2,348,768,000.00	536,951,000.00	578,586,000.00	\$14.80	666,666,667.00
	T-3	0.003936879	0.322097415	0.221341173	3.067941524	5.784614784	19726000	1,613,891,000.00	1,109,045,000.00	5,010,568,000.00	8,253,333,337.46	2,690,186,000.00	616,504,000.00	596,778,000.00	\$12.38	666,666,667.00
Transfield	T-4	-0.029103827	0.28847337	0.205670738	2.507003322	4.763962926	-177966000	1,763,976,000.00	1,257,649,000.00	6,114,866,000.00	8,926,666,671.13	3,560,692,000.00	836,629,000.00	1,014,595,000.00	\$13.39	666,666,667.00
	T-5	-0.089707676	0.22133267	0.252917757	2.549140077	4.509266553	-535447000	1,321,090,000.00	1,509,615,000.00	5,968,798,000.00	9,833,333,338.25	3,857,510,000.00	1,275,204,000.00	1,810,651,000.00	\$14.75	666,666,667.00
	T-6	-0.042279836	0.1907994	0.128423716	2.47398359	3.805340459	-199682000	901,120,000.00	606,528,000.00	4,722,866,000.00	7,500,000,003.75	3,031,548,000.00	564,759,000.00	764,441,000.00	\$11.25	666,666,667.00
	T-7	-0.023404121	0.168775817	0.118526454	1.695646012	2.973604211	-103060000	743,203,968.00	521,931,000.00	4,403,497,976.00	4,866,666,822.40	2,870,095,992.00	455,393,008.00	558,453,008.00	\$7.30	666,666,688.00
	T-8	-0.04825659	0.173612339	0.143126967	3.521384085	4.908679504	-165761000	596,356,992.00	491,639,984.00	3,434,991,976.00	7,213,333,564.16	2,048,437,032.00	218,258,000.00	384,019,000.00	\$10.82	666,666,688.00
	T-9	0.011354227	0.150811257	0.125613431	3.460163832	5.043422706	34240000	454,788,992.00	378,802,000.00	3,015,617,016.00	6,126,669,803.52	1,770,629,976.00	230,656,000.00	196,416,000.00	\$9.19	666,667,008.00
	T-0 2006	-0.054718372	0.055812806	0.073158983	1.198509075	1.573060118	-82695000	84,349,000.00	110,564,000.00	1,511,284,000.00	1,392,131,811.20	1,161,553,000.00	513,262,000.00	595,957,000.00	\$8.60	161,875,792.00
	T-1	-0.04370267	0.055630142	0.052747195	1.217638908	1.527646749	-59863000	76,201,000.00	72,252,000.00	1,369,779,000.00	1,217,453,827.12	999,848,000.00	423,938,000.00	483,801,000.00	\$7.61	159,980,792.00
	T-2	0.053188608	0.069557835	0.064829377	1.111439699	2.17834091	46738000	61,122,000.00	56,967,000.00	878,722,000.00	706,560,000.00	635,716,000.00	280,871,000.00	234,133,000.00	\$5.12	138,000,000.00
Transfield	T-3	0.071567581	0.018382192	0.067944725	0.932987022	1.965634209	47549000	12,213,000.00	45,142,000.00	664,393,000.00	436,080,000.00	467,402,000.00	245,049,000.00	197,500,000.00	\$3.16	138,000,000.00
	T-4	0.070022887	0.001795561	0.06901276	1.218795381	2.208704562	35215000	903,000.00	34,707,000.00	502,907,000.00	387,750,000.00	318,142,000.00	212,221,000.00	177,006,000.00	\$2.82	137,500,000.00
	T-5	0.030576031	-0.025752993	0.053075458	0.974969865	1.497009442	13871000	-11,683,000.00	24,078,000.00	453,656,000.00	275,000,000.00	282,060,000.00	157,972,000.00	144,101,000.00	\$2.00	137,500,000.00
	T-6	-0.008645533	-0.055955812	0	#VALUE!	#VALUE!	-3600000	-23,300,000.00	0	416,400,000.00	#VALUE!	257,000,000.00	125,100,000.00	128,700,000.00	\$--	137,500,000.00

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs										
								CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
Air New Zealand	T-0 2006	0.148229395	0.104507291	0.299177736	0.666875653	0.693074004	4.163478261	389,012,254.30	2,624,393,453.41	3722345588	1,300,271,403.90	2,624,393,453.41	3,935,356,526.03	1,201,579,077.23	1,733,695,205.20	3,838,309,071.47	99,514,762.73	945,801,463.94
	T-1	0.17130537	0.107107843	0.358196721	0.623411535	0.427553444	3.571428571	400,660,126.52	2,338,864,949.12	3740716971	1,118,547,721.65	2,338,864,949.12	3,751,719,079.49	825,158,155.31	1,929,953,241.04	3,386,815,806.36	120,106,353.72	981,938,204.82
	T-2	0.179297716	0.129656784	0.416756529	0.681921938	0.614307998	3.712322309	425,582,497.72	2,373,608,021.88	3282377393	1,021,177,757.52	2,373,608,021.88	3,480,762,078.40	903,598,906.11	1,470,921,604.38	3,340,773,928.90	119,171,376.48	932,016,408.39
	T-3	0.19606984	0.129214392	0.46020006	0.721125514	0.688318235	4.874676072	456,688,493.10	2,329,213,375.24	3534346953	992,369,477.91	2,329,213,375.24	3,229,969,442.99	951,370,700.19	1,382,166,928.58	3,170,850,357.95	118,653,745.42	674,814,911.82
	T-4	0.018662815	0.009705593	0.045081343	0.773647181	0.878546681	6.197727073	48,597,719.03	2,603,986,521.51	5007186798	1,078,000,691.20	2,603,986,521.51	3,365,857,957.49	1,201,709,002.94	1,367,837,394.16	3,098,477,622.26	133,395,541.73	521,461,033.35
	T-5	0.019262137	0.014713793	0.04020574	0.936155146	4.345281567	12.06442766	116,622,827.99	6,054,511,398.06	7926088793	2,900,651,203.57	6,054,511,398.06	6,467,423,083.05	3,489,403,794.04	803,032,839.15	7,508,212,976.25	296,931,292.84	646,955,204.85
	T-6	0.05295355	0.07640094	0.108842734	0.823115932	5.521830031	13.28079019	314,311,727.90	5,935,612,064.82	4113977218	2,887,760,308.04	5,935,612,064.82	7,211,149,526.71	3,220,370,608.05	583,207,123.38	7,638,381,196.86	281,192,844.54	596,317,984.92
	T-7	0.146424644	0.079753061	0.347629946	0.515756265	2.050518563	10.76276035	265,980,238.48	1,816,499,125.23	3335047409	765,124,643.57	1,816,499,125.23	3,522,010,781.99	1,193,902,599.00	582,244,228.62	2,828,114,902.36	159,655,684.35	277,602,630.69
	T-8	0.082389351	0.053098828	0.192238365	0.515384021	1.905595678	15.89817875	146,059,620.54	1,772,797,324.21	2750712690	759,783,931.54	1,772,797,324.21	3,439,759,967.73	1,158,378,193.64	607,882,462.59	2,804,497,926.65	89,863,050.37	182,056,134.96
Alcoa	T-0 2005	0.08840595	0.44209971	0.227470141	0.562618708	1.379898862	39.9855643	2,284,312,389.26	25,838,898,732.45	5166961974	10,042,251,601.47	25,838,898,732.45	45,926,127,845.17	8,925,991,549.68	6,468,583,889.87	36,822,952,160.28	4,704,920,267.14	1,038,571,623.28
	T-1	0.122897222	0.602465753	0.349158463	0.548713545	-6.293706294	63.55142232	2,836,321,423.96	23,078,808,203.28	4707855024	8,123,307,106.93	23,078,808,203.28	42,059,847,800.85	8,125,886,753.51	-1,291,113,117.50	33,361,279,504.71	4,099,058,428.99	589,449,245.45
	T-2	0.132815916	0.739051095	0.477970102	0.576960676	-6.658424908	26.18229167	3,240,000,000.00	24,394,666,666.67	4384000000	6,778,666,666.67	24,394,666,666.67	42,281,333,333.33	9,694,666,666.67	-1,456,000,000.00	16,742,666,666.67	3,365,333,333.33	768,000,000.00
	T-3	0.098924153	0.471055328	0.412239408	0.623616236	-4.459800315	74.30523256	3,247,968,915.58	32,832,921,229.25	6895090074	7,878,841,398.80	32,832,921,229.25	52,649,240,551.04	14,989,403,037.80	-3,361,003,179.09	40,833,627,693.39	4,311,197,456.73	607,559,166.37
	T-4	0.167861626	0.272306302	0.481910853	0.579368718	-3.666479506	48.95846375	4,721,895,808.85	32,173,913,043.48	17340383862	9,798,276,537.41	32,173,913,043.48	55,532,706,619.66	12,788,875,832.35	-3,488,053,270.66	44,136,310,223.27	4,956,913,435.17	1,002,741,872.31
	T-5	0.152012797	0.39790649	0.358436007	0.5918084	1.583836417	41.91218328	5,146,209,386.28	33,853,790,613.72	12933212996	14,357,400,722.02	33,853,790,613.72	57,203,971,119.13	14,680,505,415.16	9,268,953,068.59	23,194,945,848.38	4,879,061,371.84	669,675,090.25
	T-6	0.240688913	0.652846715	0.744588745	0.544357201	7.764556962	84.61603376	3,420,006,118.08	14,209,238,299.17	5238605078	4,593,147,751.61	14,209,238,299.17	26,102,783,725.91	4,691,037,014.38	604,160,293.67	28,198,225,757.11	2,474,762,924.44	362,496,176.20
	T-7	0.221235373	0.590591398	0.672214913	0.56868146	1.685212016	52.6860587	3,578,758,755.50	16,176,250,203.62	6059618830	5,323,831,242.87	16,176,250,203.62	28,445,186,512.46	5,683,987,620.13	3,372,862,029.65	29,686,431,014.82	3,063,202,475.97	621,599,609.06
Amadeus energy	T-0 2006	0.232954153	0.132983519	8.25412844	0.585423035	1.819547247	9.17247547	26,991,000.00	115,864,000.00	202965000	3,270,000.00	115,864,000.00	197,915,000.00	101,034,000.00	55,527,000.00	177,625,000.00	1,862,000.00	19,568,000.00
	T-1	1.824703016	0.240442313	11.85064293	0.143415678	0.001380181	37.06962451	11,981,000.00	6,566,000.00	498299000	1,011,000.00	6,566,000.00	45,783,000.00	35,000.00	25,359,000.00	39,412,000.00	393,000.00	1,073,000.00
	T-2	0.796290374	0.176183401	2.486270594	0.214641178	0.313717956	13.18071402	4,980,000.00	6,254,000.00	28266000	2,003,000.00	6,254,000.00	29,137,000.00	5,715,000.00	18,217,000.00	35,484,000.00	328,000.00	2,717,000.00
	T-3	0.66548829	0.300139507	2.083948339	0.370679771	0.588584906	31.95320197	4,518,000.00	6,789,000.00	15053000	2,168,000.00	6,789,000.00	18,315,000.00	6,239,000.00	10,600,000.00	25,752,000.00	194,000.00	812,000.00
	T-4	0.387189121	0.247512296	0.918116249	0.339818812	0.494811321	57.76626506	2,164,000.00	5,589,000.00	8743000	2,357,000.00	5,589,000.00	16,447,000.00	5,245,000.00	10,600,000.00	23,793,000.00	180,000.00	415,000.00
	T-5	0.626268747	0.35579654	1.996137132	0.33898218	0.585953681	48.07235622	4,134,000.00	6,601,000.00	11619000	2,071,000.00	6,601,000.00	19,473,000.00	6,224,000.00	10,622,000.00	25,712,000.00	199,000.00	539,000.00
	T-6	0.177608148	0.106108548	0.731629776	0.460387091	0.777213595	8.377925725	1,507,360.00	8,486,998.00	14205830	2,060,277.00	8,486,998.00	18,434,483.00	8,042,077.00	10,347,319.00	19,300,765.00	215,680.00	3,329,508.00
	T-7	0.009340987	0.015859442	0.036075353	0.673638293	1.805946876	26.81315494	97,030.00	10,387,553.00	6118122	2,689,648.00	10,387,553.00	15,420,075.00	10,089,036.00	5,586,563.00	13,516,354.00	119,181.00	508,539.00
	T-8	0.117242193	0.09775397	0.538001987	0.642590658	2.403488213	18.71367003	1,382,791.00	11,794,312.00	14145625	2,570,234.00	11,794,312.00	18,354,316.00	11,219,221.00	4,667,891.00	15,593,382.00	29,557.00	834,841.00
	T-9	-0.119964083	-0.0079474	-0.119964083	0.090574107	0.080356421	4.498803989	-58,518.00	487,796.00	7363163	487,796.00	487,796.00	5,385,601.00	354,846.00	4,415,901.00	3,974,032.00	0	883,353.00
BHP	T-0 2006	0.435393375	0.249898619	1.182259339	0.495939484	3.90980052	65.91752577	14,093,905,556.30	32,370,509,888.34	56398493206	11,921,162,383.96	32,370,509,888.34	65,271,088,389.61	12,129,691,914.44	3,102,381,272.70	65,141,934,615.90	3,675,501,143.55	1,043,993,004.17
	T-1	0.375894888	0.23614845	1.165426296	0.563904061	3.308355635	34.76304654	11,687,835,537.51	31,093,361,267.51	49704072280	10,028,807,123.22	31,093,361,267.51	55,139,452,664.66	14,568,547,859.11	4,403,561,607.96	61,217,755,663.22	3,328,532,146.13	1,856,750,032.74
	T-2	0.337057255	0.216170005	1.056296002	0.505275987	1.828198723	20.84763476	7,707,940,194.51	22,868,340,833.21	35656844244	7,297,140,368.70	22,868,340,833.21	45,259,108,724.05	9,561,619,973.87	5,230,076,934.24	52,527,217,302.95	2,489,475,976.19	2,638,989,693.71
	T-3	0.225055845	0.176093606	0.770063694	0.558091214	2.082456639	22.78994845	5,434,522,025.77	24,147,437,818.40	30861552292	7,057,237,039.26	24,147,437,818.40	43,267,905,304.17	10,973,928,678.45	5,269,703,326.34	51,006,892,418.34	1,989,811,207.67	2,325,442,013.78
	T-4	0.2228739	0.174901371	0.637562061	0.559540553	1.671092952	20.99533022	6,593,484,419.26	29,583,923,512.75	37698300283	10,341,713,881.02	29,583,923,512.75	52,871,813,031.16	14,483,002,832.86	8,666,784,702.55	53,050,637,393.77	2,671,742,209.63	2,654,036,827.20

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash		
	T-2	1.165745856	0.05215204	1.296797078	0.199963385	0.148737307	1.370133287	36,925,000.00	31,675,000.00	708026000	28,474,000.00	31,675,000.00	158,404,000.00	10,678,000.00	71,791,000.00	61,522,000.00	978,000.00	45,616,000.00		
	T-3	1.065296261	0.041081278	1.147622449	0.172530305	0.134916659	1.068966508	26,791,712.00	25,149,541.00	652163547	23,345,406.00	25,149,541.00	145,768,832.00	10,036,304.00	74,388,916.00	49,714,455.00	1,013,496.00	47,455,136.00		
	T-4	0.571979386	0.032185896	0.597650799	0.248871196	0.172886497	1.135155822	19,615,262.00	34,293,652.00	609436559	32,820,607.00	34,293,652.00	137,796,790.00	12,379,637.00	71,605,575.00	43,105,891.00	1,414,632.00	39,219,746.00		
	T-5	0.736130307	0.019503013	0.759687016	0.130550519	0	0.757165095	10,610,525.00	14,413,921.00	544045431	13,966,969.00	14,413,921.00	110,408,761.00	0	68,164,696.00	29,325,307.00	0	38,730,400.00		
	T-6	1.128397757	0.028582739	1.151321546	0.132565568	0	0.601101804	15,398,601.00	13,646,430.00	538737759	13,374,718.00	13,646,430.00	102,940,984.00	0	66,181,366.00	24,469,080.00	0	40,707,048.00		
	T-7	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	93,151,000.00	0	65,164,000.00	17,272,000.00	0	18,390,000.00
	T-8	0	#DIV/0!	#DIV/0!	0	0.427272042	0.440768309	0.566386458	0	34,010,000.00	0	0	26,501,000.00	34,010,000.00	79,598,000.00	13,975,000.00	31,706,000.00	9,837,000.00	0	17,368,000.00
	T-9	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0	0
	T-0 2005	0.318412056	0.025269725	0.417951759	0.475682277	0.846894412	160.1599846	617,749,000.00	1,940,093,000.00	24446210000	1,478,039,000.00	1,940,093,000.00	4,078,548,000.00	457,959,000.00	540,751,000.00	3,517,192,000.00	1,044,805,000.00	28,484,000.00		
Caltex	T-1	0.292915138	0.0222317	0.421570257	0.475484063	0.849152121	279.3246689	456,510,000.00	1,558,506,000.00	20534192000	1,082,880,000.00	1,558,506,000.00	3,277,725,000.00	461,442,000.00	543,415,000.00	3,143,210,000.00	822,083,000.00	14,196,000.00		
	T-2	0.313985859	0.02837472	0.594961809	0.558826541	1.215914172	95.06057602	486,674,000.00	1,549,987,000.00	17151676000	817,992,000.00	1,549,987,000.00	2,773,646,000.00	660,746,000.00	543,415,000.00	2,949,678,000.00	502,732,000.00	36,318,000.00		
	T-3	0.219249944	0.025556462	0.434392421	0.63473018	1.789059927	189.3902833	394,831,000.00	1,800,826,000.00	15449361000	908,927,000.00	1,800,826,000.00	2,837,152,000.00	972,202,000.00	543,415,000.00	2,877,608,000.00	525,546,000.00	17,969,000.00		
	T-4	0.046167458	0.005631685	0.121377672	0.701064245	2.3273189	#DIV/0!	88,914,000.00	1,925,902,000.00	15788171000	732,540,000.00	1,925,902,000.00	2,747,112,000.00	1,264,700,000.00	543,415,000.00	2,812,577,000.00	492,736,000.00	0		
	T-5	-0.001555856	-0.00195192	-0.003586327	0.681403005	2.360814479	78.1720877	-3,358,000.00	2,158,297,000.00	17203537000	936,334,000.00	2,158,297,000.00	3,167,431,000.00	1,282,902,000.00	543,415,000.00	2,697,970,000.00	562,671,000.00	41,711,000.00		
	T-6	0.074713868	0.014006106	0.142308886	0.65831391	2.058406559	263.3895769	146,284,000.00	1,957,923,000.00	10444302000	1,027,933,000.00	1,957,923,000.00	2,974,148,000.00	1,118,569,000.00	543,415,000.00	2,599,843,000.00	462,851,000.00	11,628,000.00		
	T-7	0.100521459	0.019177898	0.244925342	0.643840665	1.353029145	183.5473765	176,153,000.00	1,752,392,000.00	9185209000	719,211,000.00	1,752,392,000.00	2,721,779,000.00	1,168,043,000.00	543,415,000.00	2,597,853,000.00	267,138,000.00	15,609,000.00		
	T-8	0.02555212	0.085699546	0.066336786	0.671517753	3.602144444	66.80959549	49,670,000.00	1,943,869,992.00	579583000	748,754,992.00	1,943,869,992.00	2,894,741,032.00	972,579,000.00	270,000,000.00	2,553,789,040.00	360,979,992.00	43,628,000.00		
	T-9	0.37319554	0.116418221	0.640705625	0.143862964	0.33	0.171428571	50,412,000.00	135,082,000.00	433025000	78,682,000.00	135,082,000.00	938,963,000.00	59,400,000.00	180,000,000.00	30,000.00	0	175,000.00		
Capral Aluminium	T-0 2005	-0.25966795	-0.082478478	-0.309335747	0.447376799	0.36103054	89.20226021	-54,006,000.00	207,981,000.00	654789000	174,587,000.00	207,981,000.00	464,890,000.00	107,790,000.00	298,562,000.00	219,854,000.00	87,983,000.00	3,451,000.00		
	T-1	-0.164914688	-0.041367795	-0.232899624	0.41928248	0.391764571	194.332853	-20,191,000.00	122,433,000.00	488085000	86,694,000.00	122,433,000.00	292,006,000.00	61,290,000.00	156,446,000.00	226,273,000.00	43,461,000.00	1,388,000.00		
	T-2	-0.026513637	-0.005030521	-0.03854035	0.323382023	0.300960983	93.12698413	-2,652,000.00	100,024,000.00	527182000	68,811,000.00	100,024,000.00	309,306,000.00	37,519,000.00	124,664,000.00	198,282,000.00	48,132,000.00	2,646,000.00		
	T-3	0.605793601	0.052029755	0.653328754	0.275954373	0.101568818	42.17222328	45,652,000.00	75,359,000.00	877421000	69,876,000.00	75,359,000.00	273,085,000.00	10,048,000.00	98,928,000.00	173,565,000.00	47,797,000.00	5,249,000.00		
	T-4	-0.237600845	-0.028940185	-0.254130541	0.358976053	0.323187128	24.04167776	-24,533,000.00	103,253,000.00	847714000	96,537,000.00	103,253,000.00	287,632,000.00	30,048,000.00	92,974,000.00	116,959,000.00	63,594,000.00	7,510,000.00		
	T-5	0.441924386	0.0601375	0.449178102	0.256720911	0.008707562	7.347781627	74,763,000.00	169,176,000.00	1243201000	166,444,000.00	169,176,000.00	658,988,000.00	2,613,000.00	300,084,000.00	383,709,000.00	97,725,000.00	65,521,000.00		
	T-6	0.18410591	0.069056533	0.415042603	0.383571375	0.476419936	25.4381415	53,582,000.00	291,039,000.00	775915000	129,100,000.00	291,039,000.00	758,761,000.00	142,966,000.00	300,084,000.00	468,390,000.00	133,318,000.00	23,675,000.00		
	T-7	0.256299264	0.10363128	0.620017743	0.390097324	0.499444391	32.80841985	77,996,992.00	304,320,000.00	754592024	125,798,000.00	304,320,000.00	780,113,016.00	145,624,000.00	291,572,000.00	917,256,008.00	125,494,000.00	31,783,000.00		
	T-8	0.225732614	0.099031965	0.489142872	0.424610287	0.816432703	34.7745141	76,522,000.00	338,993,992.00	772700008	156,441,000.00	338,993,992.00	798,365,000.00	153,103,992.00	187,528,000.00	919,110,992.00	126,350,000.00	30,064,000.00		
T-9	0.265373148	0.103049311	0.515499173	0.405487867	0.672293358	41.03829736	84,114,000.00	316,965,000.00	816250000	163,170,000.00	316,965,000.00	781,688,000.00	123,386,000.00	183,530,000.00	903,233,000.00	115,830,000.00	24,832,000.00			
Coffey International	T-0 2006	0.047628445	0.017477067	0.127937798	0.613632825	1.218948154	2.892451759	5,068,000.00	106,407,000.00	289980000	39,613,000.00	106,407,000.00	173,405,000.00	65,360,000.00	53,620,000.00	23,181,000.00	7,398,000.00	10,572,000.00		
	T-1	0.185427136	0.034969089	0.196442552	0.497573173	0.344598522	4.386429538	6,273,000.00	33,830,000.00	179387000	31,933,000.00	33,830,000.00	67,990,000.00	8,300,000.00	24,086,000.00	13,128,000.00	9,563,000.00	5,173,000.00		
	T-2	0.110573722	0.022094302	0.114973944	0.529605019	0.454863541	8.688769167	3,155,000.00	28,533,000.00	142797000	27,441,000.00	28,533,000.00	53,876,000.00	7,150,000.00	15,719,000.00	10,324,000.00	10,642,000.00	2,413,000.00		
	T-3	0.320323768	0.05644278	0.334709496	0.538002903	0.251088048	1.939119952	6,648,000.00	20,754,000.00	117783000	19,862,000.00	20,754,000.00	38,576,000.00	3,000,000.00	11,948,000.00	7,050,000.00	5,818,000.00	6,636,000.00		
	T-4	0.258909125	0.047162405	0.2705176	0.603540863	0.251430467	2.657362849	5,587,000.00	21,579,000.00	118463000	20,653,000.00	21,579,000.00	35,754,000.00	3,032,000.00	12,059,000.00	7,713,000.00	3,331,000.00	4,156,000.00		
	T-5	0.100895731	0.024659066	0.105562092	0.670296824	0.548387097	3.540703199	2,602,000.00	25,789,000.00	105519000	24,649,000.00	25,789,000.00	38,474,000.00	6,613,000.00	12,059,000.00	7,432,000.00	3,746,000.00	3,157,000.00		
	T-6	-0.072874494	-0.028785143	-0.076215626	0.618497577	0.347974095	4.678706199	-1,674,000.00	22,971,000.00	58155000	21,964,000.00	22,971,000.00	37,140,000.00	4,191,000.00						

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
	T-7	-1.585848968	-1.748670217	-2.225739439	0.048589068	0.009294117	0.195116223	-504,633.00	318,210.00	288581	226,726.00	318,210.00	6,549,004.00	183,673.00	19,751,526.00	531,720.00	2,725,145.00	
	T-8	-0.372466785	-0.374884872	-0.578477004	0.056043745	0.013578982	0.102241164	-183,571.00	492,852.00	489673	317,335.00	492,852.00	8,794,059.00	259,550.00	19,114,098.00	516,214.00	5,048,984.00	
	T-9	-1.164858035	-0.073647183	-1.725457679	0.052162507	0.022485322	0.043778662	-663,806.00	569,860.00	9013325	384,713.00	569,860.00	10,924,705.00	422,344.00	18,783,098.00	344,103.00	7,860,062.00	
Hill End Gold	T-0 2006	-0.659962759	-0.122013814	-0.801408104	0.068746541			-373,925.00	566,585.00	3064612	466,585.00	566,585.00	8,241,651.00	0	10,295,673.00	617,396.00	1,632,874.00	
	T-1	-1.147568702	-0.503368736	-4.782671149	0.09751262		0	-635,947.00	554,169.00	1263382	132,969.00	554,169.00	5,683,049.00	0	7,049,320.00	613,132.00	323,680.00	
	T-2	-0.496533587	-0.051978177	-0.496533587	0.079778243		0	-206,554.00	415,992.00	3973860	415,992.00	415,992.00	5,214,354.00	0	6,099,320.00	565,781.00	1,014,887.00	
	T-3	-2.017469815	-0.87569657	-2.017469815	0.151388404		0.108757	-490,919.00	243,334.00	560604	243,334.00	243,334.00	1,607,349.00	243,334.00	2,237,410.00	0	16,726.00	
	T-4	#DIV/0!	-0.062980494	#DIV/0!	#DIV/0!		#DIV/0!	-107,481.00		0	1706576	0	0	0	0	0	0	
Hills Industries	T-0 2006	0.182966658	0.050117329	0.32178455	0.478205693	0.831684823	19.80220541	54,398,000.00	297,311,000.00	1085413000	169,051,000.00	297,311,000.00	621,722,000.00	139,328,000.00	167,525,000.00	264,607,000.00	135,853,000.00	20,223,000.00
	T-1	0.120684995	0.030336424	0.19586681	0.463675929	0.66816152	18.35237469	32,594,000.00	270,075,000.00	1074418000	166,409,000.00	270,075,000.00	582,465,000.00	105,933,000.00	158,544,000.00	256,681,000.00	133,986,000.00	21,287,000.00
	T-2	0.189950968	0.042256545	0.322771044	0.452599145	1.242122987	15.52731853	36,803,000.00	193,750,000.00	870942000	114,022,000.00	193,750,000.00	428,083,000.00	84,837,000.00	68,300,000.00	249,429,000.00	89,610,000.00	21,835,000.00
	T-3	0.271119329	0.060287115	0.435325928	0.46027893	1.059758106	50.16182309	47,656,000.00	175,775,000.00	790484000	109,472,000.00	175,775,000.00	381,888,000.00	63,701,000.00	60,109,000.00	232,256,000.00	83,613,000.00	6,297,000.00
	T-4	0.16486196	0.046411819	0.250756393	0.545910727	1.843284333	42.75446154	30,831,000.00	187,011,000.00	664292000	122,952,000.00	187,011,000.00	342,567,000.00	73,230,000.00	39,728,000.00	202,596,000.00	75,308,000.00	6,500,000.00
	T-5	0.118193208	0.036580865	0.180736161	0.546460421	2.04351078	110.8018253	19,528,000.00	165,221,000.00	533831000	108,047,000.00	165,221,000.00	303,378,000.00	62,840,000.00	30,751,000.00	180,809,000.00	74,146,000.00	2,301,000.00
	T-6	0.181283691	0.059505331	0.251313425	0.543988501	1.368989096	29.26807929	25,592,000.00	141,171,000.00	433393000	101,833,000.00	141,171,000.00	259,511,000.00	37,038,000.00	27,055,000.00	157,220,000.00	56,876,000.00	7,315,000.00
	T-7	0.253163265	0.071817098	0.353025638	0.500489811	1.24303111	74.23766285	27,291,000.00	107,800,000.00	380077000	77,306,000.00	107,800,000.00	215,389,000.00	26,131,000.00	21,022,000.00	142,647,000.00	45,397,000.00	2,533,000.00
	T-8	0.236931012	0.065724133	0.264376534	0.480805459	2.678571429	605.9155844	23,704,000.00	100,046,000.00	360659000	89,660,000.00	100,046,000.00	208,080,000.00	29,475,000.00	11,004,000.00	141,919,000.00	44,703,000.00	308,000.00
	T-9	0.212024211	0.059870893	0.232499949	0.483834972	2.747855278	36.52711448	20,317,008.00	95,824,000.00	339347000	87,385,000.00	95,824,000.00	198,051,000.00	29,468,000.00	10,724,000.00	123,534,000.00	40,144,000.00	4,481,000.00
Iluka Resources	T-0 2005	0.204984649	0.178025253	0.617015493	0.593939394	0.936824877	130.0824176	227,000,000.00	1,107,400,000.00	1275100000	367,900,000.00	1,107,400,000.00	1,864,500,000.00	572,400,000.00	611,000,000.00	2,162,300,000.00	205,200,000.00	18,200,000.00
	T-1	0.274875327	0.220106962	1.002164502	0.460143146	0.684348396	149.5735294	842,200,000.00	231,500,000.00	1028400000	231,000,000.00	842,200,000.00	1,830,300,000.00	418,000,000.00	610,800,000.00	1,871,500,000.00	162,700,000.00	13,600,000.00
	T-2	0.223777972	0.151746355	0.598462053	0.459448593	0.629259502	342.2115385	179,000,000.00	799,900,000.00	1179600000	299,100,000.00	799,900,000.00	1,741,400,000.00	384,100,000.00	610,400,000.00	1,662,800,000.00	116,700,000.00	5,200,000.00
	T-3	0.144586895	0.102750127	0.47337738	0.489369118	0.769167759	78.99061033	121,800,000.00	842,400,000.00	1185400000	257,300,000.00	842,400,000.00	1,721,400,000.00	469,500,000.00	610,400,000.00	1,550,600,000.00	131,900,000.00	21,300,000.00
	T-4	0.162028448	0.133387639	0.593297101	0.516382449	0.728464419	54.88652482	131,000,000.00	808,500,000.00	982100000	220,800,000.00	808,500,000.00	1,565,700,000.00	389,000,000.00	534,000,000.00	1,346,400,000.00	201,400,000.00	28,200,000.00
	T-5	0.200622278	0.19424027	0.668048073	0.515626003	0.662457595	38.34650456	161,200,000.00	803,500,000.00	829900000	241,300,000.00	803,500,000.00	1,558,300,000.00	351,500,000.00	530,600,000.00	1,092,600,000.00	169,000,000.00	32,900,000.00
	T-6	0.255019589	0.203398106	0.926189418	0.529495657	0.622417819	30.1416309	208,300,000.00	816,800,000.00	1024100000	224,900,000.00	816,800,000.00	1,542,600,000.00	346,500,000.00	556,700,000.00	1,224,900,000.00	179,700,000.00	46,600,000.00
	T-7	0.017187921	0.068145377	0.085198797	0.62231542	1.30968198	13.54032288	25,500,000.00	1,483,600,000.00	374200000	299,300,000.00	1,483,600,000.00	2,384,000,064.00	729,100,000.00	556,700,032.00	1,571,400,064.00	301,600,000.00	138,300,000.00
	T-8	0.139257481	0.151994954	0.524281052	0.374269006	1.661809687	167.3675454	18,796,000.00	134,973,000.00	123662000	35,851,000.00	134,973,000.00	360,630,984.00	69,000,000.00	41,521,000.00	336,805,984.00	28,390,000.00	2,182,000.00
	T-9	0.366311769	0.181789009	0.626275871	0.241074536	0.124523697	39.56976321	24,359,000.00	66,498,000.00	133996000	38,895,000.00	66,498,000.00	275,840,000.00	5,000,000.00	40,153,000.00	190,527,000.00	26,711,000.00	5,490,000.00
James Hardie	T-0 2006	0.178156238	0.251858055	0.475494071	0.934343434	0.734708738	3.760710885	336,080,458.16	1,886,436,653.16	1334404246	706,802,626.07	1,886,436,653.16	2,018,997,066.63	422,824,416.82	575,499,371.42	1,482,050,565.72	173,208,548.68	440,145,271.69
	T-1	0.473502801	0.968708682	1.107862903	0.426301772	0.413551402	9.037004405	284,346,701.16	600,517,464.42	293531694.7	256,662,354.46	600,517,464.42	1,408,667,529.11	206,080,206.99	498,318,240.62	1,197,671,410.09	129,236,739.97	146,830,530.40
	T-2	0.348553055	0.888039323	0.960425281	0.480333608	0.716965742	12.10650069	216,713,314.67	621,751,299.48	244035719	225,643,076.10	621,751,299.48	1,294,415,567.11	234,306,277.49	326,802,612.29	1,029,055,044.65	137,544,982.01	96,361,455.42
	T-3	0.164927462	0.140961497	0.474377745	0.474746254	0.644419726	13.60072595	107,355,864.81	650,927,766.73	761597084.2	126,308,813.78	650,927,766.73	1,371,106,693.17	287,939,032.47	446,819,085.49	1,116,964,877.40	124,585,818.42	91,285,619.62
	T-4	0.142331062	0.176122123	0.62794476	0.594526546	1.606134372	20.63987138	145,410,082.77	1,021,632,806.62	825620767.5	231,565,086.53	1,021,632,806.62	1,718,397,291.20	620,579,382.99	386,380,737.40	1,084,462,001.50	123,024,830.70	58,502,633.56
	T-5	0.118612734	0.082184762	0.359318996	0.700709881	1.517991775	12.04765013	160,400,000.00	1,352,300,000.00	1951700000	446,400,000.00	1,352,300,000.00	1,929,960,000.00	885,900,000.00	583,600,000.00	1,666,800,000.00	178,900,000.00	153,200,000.00
	T-6	0.222070179	0.113981839	0.725878594	0.602709867	1.163076923	5.277340677	227,200,000.00	1,023,100,000.00	1993300000	313,000,000.00	1,023,100,000.00	1,697,500,000.00	642,600,000.00	552,500,000.00	1,223,800,000.00	117,700,000.00	254,200,000.00
	T-7	0.066289071	0.027477066	0.237148218	0.628187389	1.139909502	17.27545692	100,429,048.15	1,515,016,685.21	3655013507	423,486,413.48	1,515,016,685.21	2,411,727,316.07	1,000,794,533.61	877,959,637.69	1,898,776,418.24	204,036,230.73	121,722,548.86
	T-8	0.150401016	0.079697033	0.441491841	0.634344147	1.973218673	2.215112968	285,498,944.83	1,898,251,432.02	3582303286	646,668,676.51	1,898,251,432.02	2,992,463,069.04	1,210,581,851.07	613,506,180.28	1,613,656,918.90	145,010,551.70	793,940,307.51
	T-9	0.093989077	0.034605503	0.269202986	0.62095427	1.807701988	2.093162001	111,800,000.00	1,189,500,000.00	3230700000	415,300,000.00	1,189,500,000.00	1,915,600,000.00	718,200,000.00	397,300,000.00	767,300,000.00	144,900,000.00	435,800,000.00
Leighton Holdings	T-0 2006	0.302634522	0.088380331	0.353970394	0.69938649	0.816266592	2.623654998	817,158,000.00	2,700,148,000.00	9245926000	2,308,549,000.00	2,700,148,000.00	3,860,738,000.00	391,599,000.00	479,744,000.00	2,006,792,000.00	117,975,000.00	809,850,000.00
	T-1	0.284621686	0.085947239	0.324059775	0.494274211	0.558152049	2.988440043	607,708,000.00	2,135,143,000.00	7070710000	1,875,296,000.00	2,135,143,000.00	4,319,754,000.00	235,457,000.00	421,851,000.00	1,826,938,000.00	71,349,0	

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash	
	T-5	0.209046992	0.043760457	0.245893171	0.291526899		0	8.631987304	2,380,000.00	11,385,000.00	54387000	9,679,000.00	11,385,000.00	39,053,000.00	0	8,633,000.00	40,188,000.00	8,764,000.00	5,671,000.00
	T-6	0.594249201	0.104573274	0.697674419	0.297205643		0	5.350868424	6,510,000.00	10,955,000.00	62253000	9,331,000.00	10,955,000.00	36,860,000.00	0	8,633,000.00	37,276,000.00	5,547,000.00	8,003,000.00
	T-7	0.346941968	0.09749022	0.395224519	0.351804975		0.017491023	9.978977544	4,436,000.00	12,786,000.00	45502000	11,224,000.00	12,786,000.00	36,344,000.00	151,000.00	8,633,000.00	34,896,000.00	6,876,000.00	4,186,000.00
	T-8	0.831115336	0.134230592	0.853285621	0.126711366		0.038704581	3.647381974	2,623,000.00	3,156,000.00	19541000	3,074,000.00	3,156,000.00	24,907,000.00	196,000.00	5,064,000.00	16,621,000.00	4,625,000.00	5,825,000.00
	T-9	0.357390482	0.068890104	0.363345082	0.134471944		0.005665722	6.312034384	1,134,000.00	3,173,000.00	16461000	3,121,000.00	3,173,000.00	23,596,000.00	28,000.00	4,942,000.00	16,761,000.00	5,268,000.00	3,490,000.00
Kimberley Diamond	T-0 2006	-0.140953923	-0.06544279	-0.296457985	0.351886866	0.213310545	0.6069739212		-9,575,000.00	67,930,000.00	146311000	32,298,000.00	67,930,000.00	193,045,000.00	41,061,000.00	192,494,000.00	146,593,000.00	8,416,000.00	25,538,000.00
	T-1	0.233896128	0.065270274	0.239466391	0.232022908	0.040382998	9.809423173		5,098,000.00	21,796,000.00	78106000	21,289,000.00	21,796,000.00	93,939,000.00	5,331,000.00	132,011,000.00	73,636,000.00	5,271,000.00	8,044,000.00
	T-2	-0.202869932	-0.131096134	-0.223722416	0.153730951	0.011427639	60.38235294		-1,541,000.00	7,596,000.00	49556000	6,888,000.00	7,596,000.00	49,411,000.00	1,191,000.00	104,221,000.00	38,871,000.00	6,295,000.00	748,000.00
	T-3	0.05274938	0.031939052	0.11008711	0.538820078	0.192342229	12.68073293		872,000.00	16,531,000.00	27302000	7,921,000.00	16,531,000.00	30,680,000.00	13,709,000.00	71,274,000.00	21,525,000.00	1,313,000.00	1,801,000.00
	T-4	-0.119462221	-0.11359534	-0.18895666	0.501202867	0.304808855	17.99419425		-2,354,889.00	19,712,416.00	20730507	12,462,588.00	19,712,416.00	39,330,214.00	17,304,298.00	56,770,982.00	27,224,928.00	0	1,512,984.00
	T-5	-1.55229539	-0.12576091	-1.55229539	0.101818553	0	0.812586002		-1,406,465.00	906,055.00	11183642	906,055.00	906,055.00	8,898,722.00	0	39,632,002.00	1,564,315.00	0	1,925,107.00
	T-6	-0.697294641	-0.100898326	-0.697294641	0.044322777	0	13.60070102		-434,121.00	622,579.00	4298682	622,579.00	622,579.00	14,046,480.00	0	30,081,490.00	430,707.00	0	31,668.00
	T-7	-2.31814657	-0.445859549	-2.31814657	0.031687182	0	8.610413935		-711,467.00	360,912.00	1595720	306,912.00	306,912.00	9,685,683.00	0	25,174,592.00	275,826.00	0	32,034.00
	T-8	-15.98270736	-0.158468357	-15.98270736	#REF!	0	0.272011561		-7568,239.00	360,905.00	36399942	360,905.00	360,905.00	8,984,187.00	0	22,248,262.00	248,074.00	0	911,998.00
	T-9	-0.057628443	-0.047098766	-0.057628443	1.049999728	1.724982642	0.305003754		-1,279,996.00	22,211,185.00	27176848	22,211,185.00	22,211,185.00	21,153,515.00	21,985,078.00	12,745,101.00	355,459.00	0	1,165,425.00
Macquarie Infrastru	T-0 2006	0.050220069	0.084883864	0.374720107	0.480614537	1.052342901	2.957719429		306,919,000.00	6,111,481,000.00	3615752000	819,062,000.00	6,111,481,000.00	12,715,972,000.00	5,019,703,000.00	4,770,026,000.00	3,554,392,000.00	0	1,201,734,000.00
	T-1	0.050220069	0.072455406	0.374720107	0.480614537	1.396003024	2.957719429		306,919,000.00	6,111,481,000.00	4235971000	819,062,000.00	6,111,481,000.00	12,715,972,000.00	5,019,703,000.00	3,595,768,000.00	3,554,392,000.00	0	1,201,734,000.00
	T-2	0.047894522	0.151108419	0.399119306	0.414058257	0.78852417	2.210511188		245,990,000.00	5,136,078,000.00	1627904000	616,332,000.00	5,136,078,000.00	12,404,240,000.00	3,013,573,000.00	3,821,789,000.00	2,791,701,000.00	0	1,262,921,000.00
	T-3	0.047894522	0.152501719	0.399119306	0.414058257	0.810302191	2.210511188		245,990,000.00	5,136,078,000.00	1613031000	616,332,000.00	5,136,078,000.00	12,404,240,000.00	3,013,573,000.00	3,719,073,000.00	2,791,701,000.00	0	1,262,921,000.00
	T-4	0.01663714	0.020666872	0.192851292	0.416461113	0.800798929	6.36693837		79,345,000.00	4,769,149,000.00	3839236000	411,431,000.00	4,769,149,000.00	11,451,607,000.00	2,975,748,000.00	3,715,974,000.00	2,659,657,000.00	36,000.00	417,735,000.00
	T-5	0.01663714	0.079754459	0.192851292	0.416461113	2.665151271	6.366852191		79,345,000.00	4,769,149,000.00	994866000	411,431,000.00	4,769,149,000.00	11,451,607,000.00	2,975,748,000.00	1,116,540,000.00	2,659,657,000.00	0	417,735,000.00
	T-6	0.005891949	0.046843623	0.049431243	0.392104461	2.337808929	7.141915999		23,957,000.00	4,066,057,000.00	511425000	484,653,000.00	4,066,057,000.00	10,369,831,000.00	2,301,456,000.00	984,450,000.00	2,504,220,000.00	0	350,637,000.00
	T-7	0.005891949	0.046843623	0.049431243	0.392104461	3.845624077	7.141915999		23,957,000.00	4,066,057,000.00	511425000	484,653,000.00	4,066,057,000.00	10,369,831,000.00	2,301,456,000.00	598,460,992.00	2,504,220,000.00	0	350,637,000.00
	T-8	0.011717446	0.163052476	0.080569288	#REF!	3.022814139	3.263609329		32,302,000.00	2,756,744,000.00	198108000	400,922,000.00	2,756,744,000.00	8,231,072,000.00	1,461,582,000.00	483,516,992.00	1,924,929,000.00	0	589,816,000.00
	T-9	0.011717446	0.099273171	0.080569288	0.334919194	4.445227553	3.263609329		32,302,000.00	2,756,744,000.00	325384992	400,922,000.00	2,756,744,000.00	8,231,072,000.00	1,461,582,000.00	328,798,016.00	1,924,929,000.00	0	589,816,000.00
Macquarie Airports	T-0 2005	0.04433352	0.066131696	0.196083887	0.389585353	0.847107809	6.67393626		164,914,000.00	3,719,849,000.00	#####	841,038,000.00	3,719,849,000.00	9,548,226,000.00	2,765,879,000.00	3,265,085,000.00	2,287,198,000.00	0	342,706,000.00
	T-1	0.141854394	0.134750276	0.444092023	0.212339644	0.187370764	0		171,052,000.00	1,205,828,000.00	#####	385,174,000.00	1,205,828,000.00	5,678,770,000.00	504,632,000.00	2,693,227,000.00	0	166,205,000.00	
	T-2	0.789325473	0.351569119	2.417217207	0.050129298	0	0		95,862,000.00	121,448,000.00	272,669,000.00	39,658,000.00	121,448,000.00	2,422,695,000.00	0	1,800,176,000.00	0	33,479,000.00	
	T-3	0.778172681	0.013148443	0.778172681	0.023494859	0	0		34,375,000.00	44,174,000.00	#####	44,174,000.00	44,174,000.00	1,880,156,000.00	0	1,619,458,000.00	0	576,260,000.00	
	T-4	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0		0	0	0	0	0	473,900,000.00	0	473,900,000.00	0	337,900,000.00	
Mt Gibson Iron	T-0 2006	-0.246036872	-0.096918184	-0.343047767	0.237777468	0.067253112	27.76319261		-8,381,000.00	34,064,000.00	86,475,000.00	24,431,000.00	34,064,000.00	143,260,000.00	5,841,000.00	86,851,000.00	120,582,000.00	5,685,000.00	4,548,000.00
	T-1	0.839856647	0.143968888	1.374238627	0.197180825	0.133372872	1.756268774		18,205,376.00	21,676,766.00	126,453,543.00	13,247,609.00	21,676,766.00	109,933,438.00	10,587,273.00	79,381,008.00	58,958,021.00	5,296,449.00	36,585,784.00
	T-2	-0.32766897	-0.274271826	-0.543729451	0.556726296	0.340173776	9.346371082		-9,629,460.00	29,637,769.00	35,109,184.00	17,710,021.00	29,387,769.00	52,786,745.00	13,895,464.00	40,848,134.00	31,588,729.00	2,797,374.00	3,679,086.00
	T-3	-0.597013633	-0.220702644	-3.885657678	0.177359237	0.087446336	0.2164612		-2,696,627.00	4,516,860.00	12,218,372.00	693,995.00	4,516,860.00	25,467,295.00	2,952,292.00	33,761,186.00	1,634,994.00	0	7,553,289.00
	T-4	-0.565112087	-0.38571748	-0.57621675	0.160545122	0.004215744	0.144236409		-2,244,593.00	3,971,943.00	5819267	3,895,397.00	3,971,943.00	24,740,353.00	89,494.00	21,228,518.00	258,057.00	232,817.00	3,403,260.00
Midas Resources	T-0 2006	-0.525096678	-0.139398178	-0.525096678	0.097522428	0.056415355	0.050998405		-516,797.00	984,194.00	3,707,344.00	984,194.00	984,194.00	10,091,976.00	754,203.00	13,368,754.00	61,564.00	1,207,175.00	
	T-1	-3.94003269	-0.327410751	-3.94003269	0.012535784	0	7.598790822		-441,130.00	111,961.00	1,347,329.00	111,961.00	111,961.00	8,931,312.00	0	11,172,036.00	5,429,602.00	0	714,535.00
	T-2	-33.97265625	-3.448397799	-33.97265625	0.001417617	0	5.256263729		-426,153.00	12,544.00	123,580.00	316,602,000.00	953,989,000.00	12,544.00	8,848,654.00	0	10,053,337.00	5,860,056.00	1,114,871.00
	T-3	-4.834833119	-0.040096916	-4.834833119	0.00654899	0	1.879524319		-304,638.00	63,009.00	7,597,542.00	63,009.00	63,009.00	9,621,178.00	0	10,053,337.00	5,572,175.00	0	2,964,673.00
	T-4	-10.9165136	-11.25991063	-10.9165136	0.002925771	0	1.452898625		-314,996.00	28,855.00	27975	28,855.00	28,855.00	9,862,358.00	0	10,047,357.00	5,564,208.00	0	3,829,729.00
Newcrest Mining	T-0 2006	0.064948174	0.122016651	0.277129951	0.961941076	1.98986569	19.27058824		263,800,000.00	4,061,700,000.00	2162000000	951,900,000.00	4,061,700,000.00	4,222,400,000.00	1,629,700,000.00	2,768,400,000.00	180000000	153,000,000.00	
	T-1	0.136531365	0.135339917	0.519350311	0.626258625	1.79499003	40.2120743		259,000,0										

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
	T-1	0.121752899	0.053730272	0.181669185	0.241806799	0.149770818	110.663725	8,535,000.00	70,101,000.00	158849000	46,981,000.00	70,101,000.00	289,905,000.00	31,074,000.00	207,477,000.00	211,796,000.00	26,463,000.00	2,153,000.00
	T-2	0.378547357	0.136232347	0.76647513	0.331764152	0.287575242	2.089533251	8,537,000.00	22,552,000.00	62665000	11,138,000.00	22,552,000.00	67,976,000.00	12,517,000.00	47,622,000.00	43,526,000.00	47,622,000.00	22,796,000.00
	T-3	0.178202742	0.107892108	0.414730209	0.625042972	1.231075076	72.8844697	4,212,000.00	23,636,000.00	39039000	10,156,000.00	23,636,000.00	37,815,000.00	12,827,000.00	38,478,000.00	5,000.00	528,000.00	
	T-4	0.164913129	0.140270873	0.394237255	0.637744871	1.359865908	295.3650794	4,091,000.00	24,807,000.00	29165000	10,377,000.00	24,807,000.00	38,898,000.00	17,443,000.00	37,202,000.00	14,000.00	126,000.00	
	T-5	0.193607376	0.161016412	0.551372464	0.636586312	1.431569343	89.03722084	5,082,000.00	26,249,000.00	31562000	9,217,000.00	26,249,000.00	41,234,000.00	18,828,000.00	13,152,000.00	35,865,000.00	17,000.00	403,000.00
	T-6	0.172776323	0.12417667	0.50341001	0.626360519	1.402434386	29.43921569	4,355,000.00	25,206,000.00	35071000	8,651,000.00	25,206,000.00	40,242,000.00	18,435,000.00	13,145,000.00	30,021,000.00	7,000.00	1,020,000.00
	T-7	0.208018315	0.123032357	0.499317388	0.541977998	1.138326195	16.33382912	3,429,547.00	16,486,755.00	27875163	6,868,471.00	16,486,755.00	30,419,602.00	11,383,715.00	10,000,398.00	18,490,703.00	24,607.00	1,133,556.00
	T-8	0.163263962	0.111556116	0.367204859	0.585847673	1.942229138	13.62705314	2,479,000.00	15,184,000.00	22222000	6,751,000.00	15,184,000.00	25,918,000.00	9,985,000.00	5,141,000.00	14,077,000.00	27,000.00	1,035,000.00
	T-9	0.093533139	0.05848321	0.215627174	0.526586167	1.577945946	6.937304075	930,000.00	9,943,000.00	15902000	4,313,000.00	9,943,000.00	18,882,000.00	7,298,000.00	4,625,000.00	8,828,000.00	24,000.00	1,276,000.00
Nylax	T-0 2006	-0.015350621	-0.003527553	-0.015887872	0.662278139	0.095049257	45.75139442	-2,105,000.00	137,128,000.00	596731000	132,491,000.00	137,128,000.00	207,055,000.00	62,270,000.00	655,134,000.00	61,150,000.00	53,686,000.00	2,510,000.00
	T-1	-0.007611278	-0.003105612	-0.01542789	0.854801266	0.240448421	15.64809773	-2,172,000.00	285,366,000.00	699379000	140,784,000.00	285,366,000.00	333,839,000.00	155,051,000.00	644,841,000.00	155,703,000.00	68,456,000.00	14,325,000.00
	T-2	-0.053355276	-0.020858368	-0.079573594	1.013070341	0.446233245	48.16621888	-21,819,000.00	408,938,000.00	1046055000	274,199,000.00	408,938,000.00	403,662,000.00	228,006,000.00	510,957,000.00	202,612,000.00	66,300,000.00	5,583,000.00
	T-3	0.043811242	0.024433371	0.13830795	0.101875254	0.915823254	42.0840896	26,572,000.00	606,511,000.00	1087529000	192,122,000.00	606,511,000.00	599,986,000.00	408,100,000.00	445,610,000.00	257,568,000.00	108,774,000.00	8,705,000.00
	T-4	-0.016306003	-0.010531937	-0.053298526	0.913680644	1.177369765	22.07525061	-11,617,000.00	712,437,000.00	1103026000	217,961,000.00	712,437,000.00	779,744,000.00	488,632,000.00	415,020,000.00	363,466,000.00	118,812,000.00	21,847,000.00
	T-5	0.028106489	0.003573184	0.090447635	0.772099768	1.111780639	17.72994999	20,830,000.00	741,110,000.00	5829535000	230,299,000.00	741,110,000.00	959,863,000.00	495,027,000.00	445,256,000.00	413,508,000.00	160,836,000.00	32,394,000.00
	T-6	0.076727677	0.010776708	0.227698697	0.588354069	1.091596887	40.18200883	55,155,000.00	718,841,000.00	5117982000	242,228,000.00	718,841,000.00	1,221,783,000.00	475,695,000.00	435,779,000.00	532,558,000.00	195,440,000.00	18,120,000.00
	T-7	0.079984557	0.009483596	0.243310178	0.610092757	1.17737829	36.67339702	51,382,000.00	642,399,008.00	5417986832	211,179,000.00	642,399,008.00	1,052,953,016.00	341,462,008.00	369,008,000.00	429,981,008.00	165,815,000.00	16,246,000.00
	T-8	0.038818552	0.012587737	0.10819832	0.612562533	7.730932241	49.66236264	23,021,032.00	593,042,008.00	1828846008	212,767,000.00	593,042,008.00	968,133,008.00	341,483,008.00	147,711,000.00	351,016,008.00	129,666,000.00	9,679,000.00
T-9	0.166373787	0.029958278	0.283692465	0.516060937	4.047700548	27.93180144	32,091,008.00	192,885,000.00	1071190000	113,119,000.00	192,885,000.00	373,764,000.00	127,709,000.00	31,551,000.00	159,198,000.00	30,431,000.00	6,789,000.00	
Newmont Mining	T-0 2005	0.265314835	0.593317422	0.920740741	0.334834191	0.266289343	11.35397412	1,694,152,923.54	6,385,443,641.82	2855390487	1,839,989,096.36	6,385,443,641.82	19,070,464,767.62	2,629,139,975.47	9,873,245,195.58	15,138,339,920.95	1,605,560,855.93	1,474,717,186.86
	T-1	0.383628456	0.56932832	1.413937266	0.317756412	0.222381473	3.563480521	2,007,934,992.91	5,234,061,653.55	3526848962	1,420,101,896.04	5,234,061,653.55	16,471,930,865.47	2,059,508,577.32	9,261,151,812.20	6,914,603,379.34	1,017,934,992.90	2,226,064,749.13
	T-2	0.177403336	0.208788041	0.705920721	0.30033195	0.152591639	5.018780507	785,002,666.67	4,424,960,000.00	3759806667	1,112,026,666.67	4,424,960,000.00	14,733,564,000.00	1,436,665,333.33	9,415,098,666.67	7,752,845,333.33	1,040,205,333.34	1,752,029,333.33
	T-3	0.153013483	0.378607117	0.96660961	0.431405213	3.215120199	14.86989243	1,183,871,423.53	7,737,039,915.22	3126912752	1,224,766,866.83	7,737,039,915.22	17,934,507,241.26	3,208,413,987.99	997,914,164.61	9,316,328,152.60	1,232,917,696.92	709,436,594.84
	T-4	0	#DIV/0!	0	0.464282283	0.591360856	8.33832395	0	8,516,842,929.89	0	1,676,067,371.72	8,516,842,929.89	18,344,104,974.54	3,938,699,569.13	6,660,399,529.96	10,551,312,181.75	876,811,594.20	1,370,544,457.50
Programmed Maint	T-0 2006	0.035018244	0.020518549	0.105764155	0.592248965	2.973895139	14.91496859	6,411,000.00	183,076,000.00	312449000	60,616,000.00	183,076,000.00	309,120,000.00	80,884,000.00	27,198,000.00	71,135,000.00	26,215,000.00	6,527,000.00
	T-1	0.093740275	3.458477971	0.297952611	0.53857188	1.886265685	37.60479855	12,952,000.00	138,169,000.00	3745000	43,470,000.00	138,169,000.00	256,547,000.00	49,456,000.00	26,219,000.00	59,838,000.00	23,231,000.00	2,209,000.00
	T-2	0.132130615	0.077629524	0.427076643	0.540680159	2.077459444	34.71879553	15,959,000.00	120,782,000.00	205579000	37,368,000.00	120,782,000.00	223,389,000.00	43,797,000.00	21,082,000.00	51,208,000.00	20,278,000.00	2,059,000.00
	T-3	0.109280842	0.070586694	0.409760735	0.57418569	2.86521889	20.9359589	12,930,000.00	118,319,000.00	183179000	31,555,000.00	118,319,000.00	206,064,000.00	49,872,000.00	17,406,000.00	47,107,000.00	14,026,000.00	2,920,000.00
	T-4	0.043955575	0.030229034	0.187960172	0.609648646	4.5728219	19.42509603	4,927,000.00	112,090,000.00	162989000	26,213,000.00	112,090,000.00	183,860,000.00	55,793,000.00	12,201,000.00	42,824,000.00	2,689,000.00	2,343,000.00
	T-5	0.027286826	0.01902861	0.092798808	0.610338208	4.012446912	33.56182979	2,757,671.00	101,062,359.00	144922353	29,716,664.00	101,062,359.00	165,584,192.00	48,957,550.00	12,201,420.00	39,226,029.00	2,675,647.00	1,248,492.00
	T-6	0.076606344	0.053411415	0.294680675	0.593597026	2.92111287	13.93100199	6,393,150.00	83,454,577.00	119696324	21,695,179.00	83,454,577.00	140,591,299.00	35,641,725.00	12,201,420.00	35,208,791.00	2,592,356.00	2,713,455.00
	T-7	0.091360016	0	0.419900051	1.200827428	0.84496654	0.592874748	7,478,000.00	81,852,000.00	7478000	17,809,000.00	81,852,000.00	68,163,000.00	40,784,000.00	48,267,000.00		0	2,646,000.00
Orica	T-0 2006	0.136115496	0.054526532	0.318360126	0.532632685	1.608242365	3.382915469	413,900,000.00	3,040,800,000.00	#####	1,300,100,000.00	3,040,800,000.00	5,709,000,000.00	1,311,200,000.00	815,300,000.00	2,834,600,000.00	579,100,000.00	1,009,100,000.00
	T-1	0.133404331	0.058483901	0.320457065	0.630187244	3.498945148	18.8993945	375,800,000.00	2,817,000,000.00	#####	1,172,700,000.00	2,817,000,000.00	4,470,					

Failure Model Datasheet

Data for Non-Failed Companies - sheets 6-10

Sheet 8 - Cash Flow Factors

Company	Period	Cashflow CFFO/TD	CFFO/TCI	CFFO/CL	Gearing TL/TA	LC/SC	O/trading (FA+I)/NC	Company financial data for factor calcs CFFO	TD total debt	TCI cash inflow	CL current liabs	TL total liabs	TA total assets	LC loan capital	SC share cap	FA fixed assets	Inv inventory	NC net cash
	T-1	0.166559898	0.130073708	0.420711974	0.645596215	1.329779077	94.75908871	1,950,000,000.00	11,707,500,000.00	#####	4,635,000,000.00	11,707,500,000.00	18,134,400,000.00	5,549,700,000.00	4,173,400,000.00	19,216,200,000.00	332,600,000.00	206,300,000.00
	T-2	0.17039518	0.140877224	0.385226003	0.667677618	1.477809207	54.68201564	1,999,400,000.00	11,733,900,000.00	#####	5,190,200,000.00	11,733,900,000.00	17,574,200,000.00	5,903,700,000.00	3,994,900,000.00	18,507,400,000.00	374,300,000.00	345,300,000.00
	T-3	0.110214572	0.077611294	0.270778267	0.689896921	1.693232923	138.5348646	1,290,800,000.00	11,711,700,000.00	#####	4,767,000,000.00	11,711,700,000.00	16,973,800,000.00	6,363,000,000.00	3,757,900,000.00	16,457,100,000.00	430,300,000.00	121,900,000.00
	T-4	0.108390216	0.075711722	0.204841079	0.712630477	1.495588135	130.7591111	1,143,300,000.00	10,548,000,000.00	#####	5,581,400,000.00	10,548,000,000.00	14,801,500,000.00	4,406,900,000.00	2,946,600,000.00	14,325,000,000.00	385,400,000.00	112,500,000.00
	T-5	0.119671222	0.094649675	0.219555981	0.735016302	1.532581684	84.1580756	1,100,700,000.00	9,197,700,000.00	#####	5,013,300,000.00	9,197,700,000.00	12,513,600,000.00	3,330,300,000.00	2,173,000,000.00	11,914,600,000.00	330,400,000.00	145,500,000.00
	T-6	0.174981132	0.151215547	0.32291141	0.761441147	1.654197662	96.46277496	1,599,800,000.00	9,142,700,000.00	#####	4,954,300,000.00	9,142,700,000.00	12,007,100,000.00	3,113,200,000.00	1,882,000,000.00	11,137,900,000.00	264,000,000.00	118,200,000.00
	T-7	0.147954499	0.121630328	0.296195524	0.727441962	1.633528162	197.1372093	1,208,300,000.00	8,166,699,936.00	#####	4,079,399,936.00	8,166,699,936.00	11,226,600,000.00	3,074,300,000.00	1,882,000,000.00	8,241,100,000.00	235,800,000.00	43,000,000.00
	T-8	0.164728788	0.144332828	0.379812342	0.714020926	2.409411365	62.62685338	1,218,400,000.00	7,396,399,968.00	#####	3,207,899,968.00	7,396,399,968.00	10,358,800,000.00	2,836,600,000.00	1,177,300,000.00	7,398,400,000.00	204,500,000.00	121,400,000.00
	T-9	0.153404226	0.127701646	0.356276862	0.730528652	2.912386435	146.4130841	1,110,800,000.00	7,241,000,000.00	#####	3,117,800,000.00	7,241,000,000.00	9,912,000,000.00	3,237,700,000.00	1,111,700,000.00	7,687,300,000.00	145,800,000.00	53,500,000.00
Steamships Trading	T-0 2005	0.643788194	0.159316823	0.706064908	0.301923205	1.251404958	247.7831389	28,076,670.61	43,611,658.13	176,231,674.76	39,764,999.34	43,611,658.13	144,446,194.91	13,252,811.69	10,590,346.16	164,687,759.84	12,819,132.64	716,380.03
T-1	0.632506876	0.165093872	0.678893221	0.335745197	1.193305785	1245.484663	25,314,823.18	40,023,000.78	153,335,934.62	37,288,372.28	40,023,000.78	119,206,473.08	11,861,009.57	9,939,622.95	151,238,756.31	15,528,401.86	133,897.40	
T-2	0.320741855	0.107179887	0.454742385	0.412401848	2.527024794	627.47161	16,931,381.06	52,788,187.12	157,971,625.92	37,232,907.31	52,788,187.12	128,001,819.91	25,294,287.96	10,009,513.17	144,008,768.66	20,534,805.81	262,232.70	
T-3	0.168487585	0.06191336	0.240604083	0.452964034	3.306859505	243.1502862	11,158,531.04	66,227,615.67	180,228,161.07	46,377,147.53	66,227,615.67	146,209,435.51	36,372,147.99	10,999,000.09	150,206,344.88	24,072,357.06	716,753.02	
T-4	0.21038442	0.083647918	0.278132253	0.437577951	3.188140495	669.786729	14,776,080.90	70,233,722.01	176,014,859.13	53,126,096.38	70,233,722.01	160,505,623.77	39,806,521.51	12,485,811.58	162,781,962.65	30,046,950.78	287,895.99	
T-5	0.11105943	0.048936021	0.152079561	0.459432974	3.743801654	371.6204528	10,203,907.20	91,877,899.88	208,515,262.52	67,095,848.60	91,877,899.88	199,981,074.48	55,311,355.31	14,774,114.77	189,374,847.37	41,356,532.36	620,879.12	
T-6	0.198818709	0.093089031	0.30207352	0.474631448	3.677603306	191.6784399	18,602,717.77	93,566,233.64	199,837,914.78	61,583,111.09	93,566,233.64	197,134,500.83	53,229,742.34	14,474,030.48	173,726,046.08	43,751,644.78	1,134,596.52	
T-7	0.165040333	0.062968756	0.24220295	0.4651286	3.078884163	103.0219459	14,925,191.00	90,433,597.00	237,025,344.00	61,622,664.00	90,433,597.00	194,427,083.00	49,550,441.00	16,093,638.00	143,510,676.00	46,953,516.00	1,848,773.00	
T-8	0.333515692	0.10675945	0.465317731	0.428143491	3.204914829	232.9773981	78,773,497.00	86,273,293.00	269,517,096.00	61,836,236.00	86,273,293.00	201,455,558.00	43,468,638.00	13,563,118.00	142,101,304.00	77,882,070.00	5,882,250.00	
T-9	0.18149799	0.053813629	0.229075074	0.397511324	2.519607847	164.5326709	13,508,742.00	74,429,155.00	251,028,267.00	58,970,807.00	74,429,155.00	187,237,823.00	36,318,333.00	14,414,280.00	132,780,776.00	49,557,456.00	1,108,219.00	
Santos	T-0 2005	0.451739844	0.491786136	2.185429471	0.521263709	1.123187515	46.94851658	1,457,900,000.00	3,227,300,000.00	#####	667,100,000.00	3,227,300,000.00	6,191,300,000.00	1,828,100,000.00	1,627,600,000.00	10,616,600,000.00	144,000,000.00	229,200,000.00
	T-1	0.246165114	0.245296789	1.195652174	0.412642713	0.808759312	32.4421875	605,000,000.00	2,457,700,000.00	#####	506,000,000.00	2,457,700,000.00	5,956,000,000.00	1,259,400,000.00	1,557,200,000.00	4,035,300,000.00	117,300,000.00	128,000,000.00
	T-2	0.421188509	0.504412839	2.03561706	0.408255562	0.650438483	34.05220522	897,300,000.00	2,130,400,000.00	#####	440,800,000.00	2,130,400,000.00	5,218,300,000.00	1,008,700,000.00	1,550,800,000.00	3,670,800,000.00	112,400,000.00	111,100,000.00
	T-3	0.334079531	0.464779162	1.385550304	0.461753872	0.808881686	38.515625	820,800,000.00	2,456,900,000.00	#####	592,400,000.00	2,456,900,000.00	5,320,800,000.00	1,247,700,000.00	1,542,500,000.00	3,326,400,000.00	124,600,000.00	89,600,000.00
	T-4	0.29804918	0.336411802	0.9643305	0.459940183	0.766870359	29.07902164	692,100,000.00	2,322,100,000.00	#####	717,700,000.00	2,322,100,000.00	5,048,700,000.00	1,167,100,000.00	1,521,900,000.00	2,980,600,000.00	110,500,000.00	106,300,000.00
	T-5	0.435523011	0.540983607	1.339180521	0.504077428	0.667111789	15.67890411	1,023,000,000.00	2,348,900,000.00	#####	763,900,000.00	2,348,900,000.00	4,659,800,000.00	1,049,100,000.00	1,572,600,000.00	2,762,600,000.00	98,800,000.00	182,500,000.00
	T-6	0.232208589	0.547304276	1.733398757	0.525963998	0.895302701	26.35648621	529,900,000.00	2,282,000,000.00	968,200,000.00	305,700,000.00	2,282,000,000.00	4,338,700,000.00	1,399,000,000.00	1,562,600,000.00	2,490,200,000.00	90,100,000.00	97,900,000.00
	T-7	0.199225054	0.408863491	1.677419472	0.54222045	0.898906715	20.69609508	457,600,032.00	2,296,900,032.00	#####	272,800,000.00	2,296,900,032.00	4,236,099,968.00	1,397,800,000.00	1,555,000,064.00	2,365,500,000.00	72,500,000.00	117,800,000.00
	T-8	0.217598719	0.38343737	1.387650602	0.524552773	0.804544042	20.99908984	460,700,000.00	2,117,199,968.00	#####	332,000,000.00	2,117,199,968.00	4,036,200,128.00	1,223,999,968.00	151,400,000.00	2,230,900,064.00	74,800,000.00	109,800,000.00
T-9	0.222443595	0.321203639	1.633451957	0.539321596	8.114583333	6.408972692	413,100,000.00	1,857,100,000.00	#####	252,900,000.00	1,857,100,000.00	3,443,400,032.00	1,090,600,000.00	134,400,000.00	913,100,000.00	72,600,000.00	153,800,000.00	
Woodside Petroleum	T-0 2005	0.494319273	0.546976691	1.83890438	0.497712493	2.019022226	23.25641466	1,714,668,000.00	3,468,746,000.00	#####	932,440,000.00	3,468,746,000.00	6,969,377,000.00	1,127,527,000.00	558,452,000.00	5,349,614,000.00	66,898,000.00	232,904,000.00
	T-1	0.54943394	0.415484047	2.753131468	0.430743321	1.454723415	8.717758204	1,318,114,000.00	2,399,040,000.00	#####	478,769,000.00	2,399,040,000.00	5,569,535,000.00	1,027,749,000.00	706,491,000.00	6,340,260,000.00	42,560,000.00	732,163,000.00
	T-2	0.512129338	0.350270389	2.078987393	0.49113784	1.512228747	30.86735998	1,202,873,000.00	2,348,768,000.00	#####	578,586,000.00	2,348,768,000.00	4,782,299,000.00	1,068,376,000.00	706,491,000.00	5,449,803,000.00	32,271,000.00	177,601,000.00
	T-3	0.448612475	0.429290168	2.022277966	0.536902403	2.023493576	33.56572172	1,206,851,000.00	2,690,186,000.00	#####	596,778,000.00	2,690,186,000.00	5,010,568,000.00	1,429,580,000.00	706,491,000.00	5,162,757,000.00	51,745,000.00	155,352,000.00
	T-4	0.311284436	0.266631577	1.092443783	0.582300904	2.346640011	27.58270012	1,108,388,000.00	3,560,692,000.00	#####	1,014,595,000.00	3,560,692,000.00	6,114,866,000.0					

Modified Data Worksheet Fail2 -		Failure	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/	CA	CL	Share price	No. shares	CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC
Aerosonde	1	0.27989846	-1.063229453	-0.204635434	96.86105693	98.69897463	1388294	-5273583	-1014985	-1758545	4959967	3773900.5	38962	1427256	38962	0.1	37739005	-26.7920538	-0.501796884	-26.7920538	0.007855294	0
Alamain	1	0.160716335	-0.75292885	-0.020774063	0.081369617	-1.454412498	2328407	-10908193	-300968	14487681	694000	8528982	8446778	6118371	0.01	694000000	-0.086750095	-0.228956043	-0.120292947	0.588705812	0.173611941	
Australian Goldfields	1	-0.004459347	-0.260197732	0.002419801	0.129933409	-0.724806784	-129000	-7527000	70000	28928000	1600000	12314000	12314000	12314000	0.02		-0.158437551	-0.080646495	-0.158437551	0.25677544	0.209870103	
Australian Kaelin	1	0.705444225	-0.104935014	-0.038201308	65.66204405	72.97216943	39010284	-5,802,790.00	-2,112,490.00	55,298,892.00	76,689,917.50	1,167,981.00	40,153,245.00	1,142,961.00	0.35	219,114,050.00	-0.583540314	-0.016159188	-0.583540314	0.021121237	0	
Australian Plantation Timber	1	0.262455488	-4.372503484	-0.018950302	1.038188397	-1.56990156	8476000	-141210000	-612000	32295000	15872862.4	15289900	22222000	13746000	0.2	79364312	-0.272156452	-0.073166472	-0.302706242	0.473416938	0	
Australian Resources	1	0.034175604	0.18766387	0.065658828	0	1.277211702	6791000	37291000	13047000	198709000	0	79173000	37128000	30337000	0.1	224518096	0.464388112	0.245762145	0.1195262145	0.39843691	0.158332621	
Australian Topmaking Services	1	0.020956923	0.004877964	-0.009890455	3.542244693	3.935737982	-980000	-2112000	-471000	37145000	23528216	6645000	29522000	1694000	0.15	15685440	0.267268623	0.106833494	0.2994276986	0.140494329	0.58956228	
Barrick Mines(2)	1	-0.268494178	-0.308806477	-0.13870505	0.18409418	-0.7808000	-87008000	-108477000	-28410	350141000	70673769.9	364121000	41268000	128276000	0.38	185836005				1.040928772	7.837491263	
Carlovers Canwash	1	-0.108035458	-0.386013871	0.008435357	0.459782799	-1.427672515	-5265000	-18812000	411000	48734000	13605432.8	29591000	14880000	20145000	0.2	68027164	0.248599098	0.090303097	0.365152643	0.607194156	0.328362497	
Centaur Mining	1	0.133614987	-0.394938036	-0.047263859	2.548576843	1.947408933	81183000	-239960000	-28717000	607588984	1166338352	457643000	130475000	49292000	2.65	440127680	0.093985924	0.167796703	0.872595959	0.753211484	0.950649143	
Central Norseman Gold	1	-0.055430877	0.092116699	0.121045053	0.918076202	1.714076656	-4273000	7101000	9331000	77087000	58240000	63437000	39304000	43577000	0.28	208000000	0.314674401	0.305542375	0.458085687	0.822927342	0	
Chameleon Mining(2)	1	-0.184982903	-0.104309995	-0.066051944	11.8104845	10.40360124	-860253	-485088	-307171	4650446	14165873.05	1199432	339179	1199432	0.17	83328665	-0.012785218	-0.019051228	-0.012785218	0.257917628	0	
Child Care Centres(3)	1	0.151806108	0.00069791	0.03286524	1.330031683	2.615510934	7178000	33000	1554000	47284000	29284637.6	22018000	13814000	6636000	0.8	36605797	0.082932146	0.033363676	0.275165763	0.46565434	0.720921016	
China Convergent(3)	1	0.038631902	-17.51907054	-0.285076378	0.96505655	-57.759627	3227000	-1463403000	-23813000	83532000	37284668.48	3848000	16678000	13451000	0.01	3720466848	-0.224528498	-0.172107718	-0.642554457	0.460829383	0.015672772	
Clifford Corporation	1	0.267198637	0.071663946	0.1661107	0	3.102711428	26353000	7068000	16383000	98627000	0	45307000	49820000	23467000	0.1	72109432	-0.147900615	-0.055736388	-0.2838454	0.456639663	0.731338656	
Coplex	1	-0.151038908	-0.351591675	-0.042363726	1.386282871	-0.966091318	-20301680	-47258695	-5694260	134413578	74452922.28	53706876	24480785	44782465	0.36	206813673	-0.02595245	-0.027690494	-0.031124347	0.399564365	0.971849321	
Cudgen Rz	1	0.155234711	0.241427907	0.128352749	0	2.667925156	31062000	48309000	25683000	200097000	0	51543000	56593000	25531000	0	36651160	0.093843975	0.056715053	0.189459596	0.257590069	0.2067667121	
Denehurst	1	-0.032788213	-0.383261181	-0.268695942	0	-3.270158856	-3643000	-42583000	-29854000	111107000	0	78634000	35029000	38672000	0	711058832	-0.032326983	0.014273762	-0.065732313	0.707732186	2.415085843	
Ecotec	1	0.17107647	0.090318762	0.066227779	0.367692129	2.24782822	9537000	5035000	3692000	55747000	13312293.54	36205000	32970000	23433000	0.98	13583973	0.039162671	0.015039767	0.069671725	0.6391135	0.929863344	
Farnell & Thomas	1	-0.002146835	-0.001381626	-0.028089421	0.697764975	0.85390519	-101000	65000	979000	47046000	20206575.9	28959000	27123000	27224000	1.35	14967834	-0.121551159	-0.171064781	-0.129297679	0.615546486	0.332469143	
Federation Group	1	0.459353621	-0.03144584	-0.048023308	10.77151603	-1767352	-42475001	-767352	22007000	180636528	180636528	1677238	1677238	1677238	0.75	245082528	-0.150130751	-0.05093471	-0.150130751	0.119755418	0.198569223	
Golden West Refining	1	0.170445449	0.069631399	0.191381667	0.723064638	3.390423388	13840000	5564000	15540000	81199000	3465605.8	50432000	45391000	31551000	0.65	56100932	0.233598018	0.007191038	0.373360671	0.62013901	0.996778379	
Greyhound Pioneer	1	-0.554302001	-1.411673891	0.198266136	0.142634337	-6.75613523	-8335000	-22774000	3339000	16841000	3586255.14	25143000	6071000	15406000	0.26	13793289	0.067016665	0.109372972	0.1492863601	1.731912426		
Henry Walker Eltin	1	0.120008798	0.049877367	0.045806885	2.230155435	1.497823341	79658000	33107000	30255000	663768000	1058866900	460066000	295912000	216254000	0.64	165447954	0.174792312	0.067032805	0.371859018	0.693112654	1.443779272	
Huadu	1	0.002323032	0.071452889	0.050826074	0.01545588	0.07112594	116000	3568000	2038000	49935000	36464550	34000	150000	34000	0.95	36489000	83.52941176	0.894770006	83.52941176	0.000088085	0	
Investment Austasia	1	0.243936812	-0.015764289	0.016173964	1.175991385	14.00543248	14866000	-962000	987000	61024000	1758107.12	1495000	16213000	1327000	0.35	50231632	1.475585284	0.37168099	1.662396383	0.42865518	0	
Ion	1	0.009596026	0.064826144	0.130565912	1.11724916	2.38935092	5953000	52500000	80989000	620361000	435869818	389967000	164235000	158228000	2	217844909	0.206802114	0.090961282	0.509508346	0.6298813017	1.091334701	
Jennings	1	-0.546555004	-1.453876046	0.005219792	0.052191374	-8.235171023	-166839000	-448592000	1610000	308549000	30147251.04	577629000	36840000	205479000	0.08	376840638	-0.026956749	-0.026933622	-0.075779033	1.872081906	1.45355079	
Kinetic Power(1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Laverton Gold	1	-1.155224031	-1.734222115	-0.549117712	0.1011933515	-16.81565157	-43299600	-65001352	-20581789	37481561	5665775.52	55989512	12233431	55533031	0.03	188859184	0.211643175	0.151374557	0.122643081	1.493788501	0.8181914	
Macraes Mining	1	0.191564392	0.116810253	0.105624547	0	2.347260792	41923582	25563750	218848511	23115774.76	218484511	0	41768998	55727215	0.15333633	0	126783100	0.559230652	0.23719299	1.502350924	0.190858049	0.37115918
Milnes Holdings	1	0.137783618	0.073226509	0.041057697	0.869615914	2.331583386	18973772	5832123	3270039	79644969	43820673.6	50370138	37593617	26619845	1.12	39109530	0.105689427	0.042572921	0.1999858	0.632433393	0.98205986	
MIM Holdings	1	0.022482155	0.034994901	0.04069342	0.384384993	0.938630336	10740000	291700000	339200000	833500000	2085288500	545000000	2521300000	2333900000	1.2	1737740489	0.100847926	0.088530373	0.234414497	0.650830374	1.204767699	
National Forge	1	0.019945185	-0.139534884	-0.049985075	0.326802483	-0.316800457	735000	-5142000	-1842000	36851000	7623323.5	23939000	17036000	16301000	0.17	40619550	-0.071640419	-0.028508262	-0.105208269	0.649616021	0.876795332	
Newmont Yandal	1	0.148830987	-0.361001441	0.025302455	0.721828753	0.731468401	11128300	-269928000	18919000	474771400	197579941.5	659109000	226495000	115712000	1.54	308960662	0.201401284	0.288903688	0.1167630196	0.881498908	1.426095417	
Non-feral Recyclers(3)	1	0.009293749	0.007394431	0.018181818	0	0.207254656	504000	461000	986000	54230000	0	39814000	338585000	33181000	0	21630400	-0.003761297	-0.001053756	-0.004048522	0.730481283	2.217666363	
Orico	1	-0.510380942	-0.305690392	-0.307695352	0.178208655	-6.225243335	-30840905.46	-18472022.96	-18593177.11	91736400.6	51476964.77	8802805.68	39643711.14	0.11	83396733	0.084372048	0.049767102	0.109556266	0.81583607	1.066511806		
Passminco	1	-0.712233783	-1.476813546	-0.032470656	0.015805945	-2.688299415	-1480600000	-307000000	-67500000	2078800000	5625789.95	3559490000	2078800000	3559490000	0.05	1125157999	0.060628196	0.110808729	0.096268196	1.712233783	1.911134141	
Phoenix Technology(3)	1	0.074259544	-2.189250873	-1.680201911	27.69461188	11.13857309	155528	-4585132	-3518988	2094384	5251480	189621	345149	189621	0	26257400	-17.05179806	-41.218946	-17.05179806	0.090537838	0	
Planar Semiconductor(4)	1	0	0	0	0	0	0	0	0	-4584802.19	0	24362771.01	0	0	0.29	84009369	0	0	0	0	0	
Recruiters Australia(4)	1	0.010896989	0	0.972338642	0	10.54159933	3644000	0	5800000	5965000	0	2873000	5965000	2321000	0	507000000	0	0	0	0.481642917	0.015118918	
RGC	1	0.225992943	0.094010761	0.081921591	0	2.339501882	405058000	168500000	146832000	1792348000	0	909990000	690268000	285210000	0	207845300	0.205846218	0.113608685	0.656772203	0.507770824	5.44492381	
Ross Mining	1	-0.091																				

Modified Data Worksheet Fail2 -	Failure	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/	CA	CL	Share price	No. shares	CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC
Santos	0	0.028525856	0.229734721	0.087055071	2.020269082	3.642357419	169900000	1368300000	518500000	5956000000	4965215324	2457700000	675900000	506000000	8.48	585520675	0.246165114	0.245296789	1.195652174	0.412642713	0.808759312
Woodside Petroleum	0	0.137226716	0.44240749	0.178374676	5.585567563	9.40597944	764289000	2464004000	993464000	5569535000	13400000007	2399040000	1243058000	478769000	20.1	666666667	0.54943394	0.415484047	2.753131468	0.430743321	1.454723415
Transfield	0	-0.04370267	0.055630142	0.052747195	1.217638908	1.527646749	-59863000	76201000	72252000	1369779000	1217453827	999848000	423938000	483801000	7.61	159980792	0.083002616	0.040287972	0.171537471	0.729933807	2.28668557

(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC	
2.533773379	-1043872		38962	2080268	38962	38962	4959967	0	10194189	3532711	0	1394249 3
15.13507429	-739890		8528982	3231581	6118371	8528982	14487681	2410611	13885053	5570557	70376	372706 4
0.447469536	-1951000		12314000	24192000	12314000	12314000	28928000	4023000	19169000	2405000	1671000	9109000 5
0.086417203	-681564		1167981	42178109	1142961	1167981	55298892	0	39265608	3461533	0	40056064 4
0.015805985	-4161000		15289000	8708000	13746000	15289000	32295000	0	158216000	131000	0	8288000 2
9.189107085	36767000		79173000	149604000	30337000	79173000	198709000	18695000	44904000	79308000	5388000	9217000 3
879.7719238	1776000			1964000	1964000	1964000	6645000	5040000	31782000	49289000	958000	57000 2
28.4461348			364121000	16624000	128276000	364121000	350141000	291539000	37198000	148686000	17773000	5653000 5
19.9589812	7356000		29591000	81459000	20145000	29591000	48734000	11640000	35341000	44097000	1549000	2287000 5
4.313698305	43012000		457643000	256334000	49292000	457643000	607588984	369716000	388908992	375654984	18919000	91470000 5
5.903308389	19962000		63437000	65333000	43577000	63437000	77087000	0	5200000	57127000	2827000	10156000 3
14.89560037	-15335		1199432	804935	1199432	1199432	4650446	0	3936113	4307897	0	289206 5
0.288286154	1826000		22018000	54775000	6636000	22018000	47284000	18191000	25233000	2434000	0	8443000 2
21.15740741	-8643000		38494000	12127000	13451000	38494000	83532000	11662000	744093000	17970000	310000	864000 2
6.914863258	-6661000		45037000	119509000	23467000	45037000	98627000	18870000	25802000	36661000	21493000	8410000 3
23.56784982	-1393825		53706876	50335866	44782465	53706876	134413578	34367250	35362735	82919592	718182	3548808 5
2.190794329	4837000		51543000	85286000	25531000	51543000	200097000	15156000	7330000	41336000	15066000	25745000 3
76.27094972	-2542000		78634000	178089000	38672000	78634000	111107000	42904000	17765000	74806000	7109000	1074000 1
225.7253521	1405000		35876000	93419000	20186000	35876000	56134000	9254000	9952000	20914000	11139000	142000 3
-21.09767025	-3520000		28959000	20577000	27224000	28959000	47046000	5899000	17743000	14323000	9222000	-1116000 2
-7.59944961	-3606281		1677228	7099800	1677228	1677228	1033082	54778529	114005528	54778529	123038	216912 2
8.034822602	11779912		50432000	1638137968	31551000	50432000	81199000	22277000	22349000	36340000	12576000	6088000 4
13.61674467	1685000		25143000	72372000	15406000	25143000	16841000	11945000	6897000	25370000	815000	1923000 3
6.478354366	80416000		460066000	1199655000	216254000	460066000	663768000	245994000	170382000	662655000	24219000	106026000 2
358.5395683	2840000		34000	3174000	34000	34000	49935000	0	34489000	49837000	0	139000 2
33.06685237	2206000		1495000	5818000	1327000	1495000	61024000	0	25115000	35613000	0	10777000 2
12.0929566	80646000		389967000	886597000	158282000	389967000	620361000	185086000	169596000	432200000	44589000	39427000 1
-59.99859254	-15571000		577629000	578125000	205479000	577629000	308549000	424588000	292104000	27146000	143370000	-2842000 4
0	0		0	0	0	0	0	0	0	0	0	0 3
81.81216975	6810742		55989512	44992647	55533031	55989512	37481561	34768569	42494420	56744452	4164872	744502 4
5.264497287	23358504		41768998	98478897	15333633	41768998	218848511	1647268	22529540	174902710	18122610	36665480 2
2.904237405	5323591		50370138	125046413	26619845	50370138	79644969	23803609	23485063	52742195	13717639	22883747 1
37.01180891	547100000		5425000000	6179800000	2333900000	5425000000	8335500000	2673500000	2219100000	6145700000	749600000	186300000 1
34.8436853	-1715000		23939000	60158000	16301000	23939000	368951000	11721000	13368000	27469000	6190000	966000 2
10.66658425	134525000		659100000	465901000	115212000	659100000	747714000	511270000	358533000	1007235000	28117000	97065000 4
64.00402885	-149000		39614000	141399000	33181000	39614000	54230000	24586000	10970000	33731000	13952000	745000 3
53.9166222	4343216.96		51476964.77	87270843.29	39643711.14	51476964.77	60427227.8	28910409.69	27107444.6	76047345.77	4359158.3	1491311.97 3
7.492997199	215800000		3559400000	1947500000	3559400000	3559400000	2078800000	2950600000	1543900000	0	267500000	35700000 5
0.332776632	-3233379		189621	78444	189621	189621	2094384	0	6489895	114771	0	344889 2
0	0		0	0	0	0	0	0	0	0	0	0 1
0	0		2873000	0	2321000	2873000	5965000	513000	33931000	0	0	5051000 2
5.858084025	187318000		909990000	1648800000	285210000	909990000	1792348000	613717000	105000000	962622000	219100000	201725000 3
4.333616093	24422000		78533000	91179000	30156000	78533000	166856000	53188000	30920000	30775000	4986000	8252000 4
12.6462892	57579000		638670000	876742000	119324000	638670000	1259308000	353164000	484933000	809625000	78663000	70241000 5
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2.523091098	-6526000		30927000	116330000	22828000	30927000	186424000	7925000	161633000	9342000	12566000	8683000 3
0.799967382	1843389		8462612	21837710	8294466	8462612	9078134	2863226	15214813	733261	1101249	2293231 2
0	-143000		579000	468000	579000	579000	1703000	300000	6829000	0	0	266000 1
3.571428571	400660127		2338864949	3740716971	1118547722	2338864949	3751719079	825158155.3	1929853241	3386815806	120106354	981938205 1
63.55142232	2836321424		23078808203	4707855024	8123307107	23078808203	4.206E+10	812586754	-1.291E+09	33361279505	4.099E+09	589449245 1
37.09692451	11981000		6566000	49829000	1011000	6566000	45783000	35000	25359000	39412000	393000	1073000 1
34.76304654	1.1688E+10		31093361268	49704072280	10028807123	31093361268	5.5139E+10	14568547859	4403561608	61217755663	3.329E+09	1856750033 1
101.1052009	889000000		2963200000	11366100000	1613400000	2963200000	6463700000	875900000	1747500000	7401300000	1.152E+09	84600000 1
40.49230769	1700800000		5450500000	12552400000	1741600000	5450500000	8695300000	3146900000	1418200000	9909600000	92000000	247000000 1
1.681408296	34854000		28544000	781314000	25545000	28544000	166536000	8256000	72431000	63647000	682000	38259000 1
279.3246689	456510000		1558506000	20534192000	1082880000	1558506000	3277725000	461442000	543415000	3143210000	822083000	14196000 1
194.332853	-20191000		122433000	488085000	86694000	122433000	292006000	61290000	156446000	226273000	43461000	1388000 1
4.386429538	6273000		33830000	179387000	31933000	33830000	67990000	8300000	24086000	13128000	9563000	5173000 1
59.3245283	320700000		1287300000	2732600000	421200000	1287300000	2655200000	323100000	863700000	2861100000	283100000	53000000 1
0.12220496	264483		1399962	3139747	1356618	1399962	7139155	0	32354626	695017	0	5687306 1
1.894253584	-635947		554169	1263382	132969	554169	5683049	0	7049320	613132	0	323680 1
18.35237469	32594000		2700750000	1074418000	166408000	2700750000	582465000	106933009	158544000	256681000	133986000	21287000 1
149.5735294	231500000		842200000	1028400000	231000000	842200000	1830390000	418000000	610800000	1871500000	182700000	13600000 1
9.037004405	284346701		600517464.4	293531694.7	256662354.5	600517464.4	1408667529	20680207	498318241	1197671410	129236740	146830530 1
2.988440043	607708000		2135143000	7070710000	1875296000	2135143000	4319754000	235457000	421851000	1826938000	71349000	635210000 1
2.983029728	2795000		10460000	57956000	7880000	10460000	49048000	125000	8633000	41741000	8532000	16853000 1
9.809423173	5098000		21796000	78106000	21289000	21796000	99393000	5331000	132011000	73636000	5271000	8044000 1
2.957719429	306919000		6111481000	4235971000	819062000	6111481000	1.2716E+10	5019703000	3595768000	3554392000	0	1201734000 1
0	171052000		1205828000	1269400000	385174000	1205828000	5678770000	504632000	2693227000	0	0	166205000 1
1.756268774	18205376		21676766	126453543	13247609	21676766	109933438	10587273	79381008	58958021	5296449	36585784 1
7.598790822	-441130		111961	1347329	111961	111961	8931312	0	11172036	5429602	0	714535 1
40.2120743	259000000		1897000000	1913700000	498700000	1897000000	3029100000	1440300000	802400000	2489600000	108100000	64600000 1
10.663725	8535000		70101000	158849000	46981000	70101000	289905000	31074000	207477000	211796000	26463000	2153000 1
15.64809773	-2172000		285366000	699379000	140784000	285366000	333839000	155051000	644841000	155703000	68456000	14325000 1

(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC	
32.4421875	605000000	2457700000	2466400000	506000000	2457700000	5956000000	1259400000	1557200000	4035300000	117300000	128000000	1
8.717758204	1318114000	2399040000	3172478000	478769000	2399040000	5569535000	1027749000	706491000	6340260000	42560000	732163000	1
8.497974715	82990000	999848000	2059920000	483801000	999848000	1369779000	646757000	282836000	703745000	57818000	89617000	1

Modified Data Worksheet Combined1 -		Failure	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/	CA	CL	Share price	No. shares	CFFO/TD	CFFO/TCI
Aerossonde	1	0.090303486	-5.977064816	-0.60128643	2.250079297	-20.57090199	151485	-10026586	-1008664	1677510	3396510.45	1509507	1660992	1509507	0.09	37739005	-0.61654103	-0.888655587	
Alamain	1	0.194061151	-0.793876178	-0.025689078	0	-1.487625794	2776632	-11358801	-367560	14308026	0	9462410	8520378	5743746	0	694000000	0.002881084	0.029112352	
Australian Goldfields	1	-0.036637857	-0.042331173	0.029349727	0.023449752	-0.156491559	-4273000	-4937000	3423000	116628000	1600000	68231000	32459000	36732000	0.02	0	-0.159165189	-0.113155646	
Australian Kaolin	1	0.122683504	-0.090238048	-0.024552622	2.220828311	2.677503856	9983442	-7,343,174.00	-1,997,984.00	81,375,586.00	38,800,664.40	17,471,258.00	15,500,136.00	5,516,694.00	0.15	258,671,096.00	-0.118227262	-0.083711927	
Australian Plantation Timber	1	0.107371614	-1.755361687	0.012421815	0.283425567	-4.637049866	8566000	-140041000	991000	79779000	17460148.64	61604000	58871000	50305000	0.22	79364312	-0.010859684	-0.016216216	
Australian Resources	1	0.018766235	0.19847054	0.050477046	0	1.109326212	3865000	40878000	10396000	205955000	0	82834000	35509000	31644000	0	224518096	0.412294468	0.199583908	
Australian Topmaking Services	1	0.012610394	0.033521569	-0.001295007	4.153857246	4.544852164	594000	1579000	-61000	47104000	28237921.56	6798000	3353000	2759000	0.18	156877342	0.341129744	0.156488292	
Barrack Mines(2)	1	-6.351878157	-9.416824495	-0.00166572	0.020575684	-72.35675773	-160982000	-238660000	-42216	25344000	3719672.1	180780000	19798000	180780000	0.02	185983605	0	0	
Carlovers Carwash	1	-0.093705293	-0.616332856	0.023247496	0.069222404	-2.395045136	-3930000	-25849000	975000	41940000	2040814.92	29482000	13838000	17768000	0.03	68027164	0.266942541	0.076581004	
Centaur Mining	1	0.064511287	-0.476300775	-0.012874285	1.311457805	0.160969019	37822000	-279248000	-7548000	586285000	623923428	475748000	105461000	67639000	1.2	519936190	0.011537621	0.026162264	
Central Norseman Gold	1	0.058615531	0.19621243	0.105450156	1.838312916	3.663024019	3448000	11542000	6203000	58824000	74880000	40733000	32042000	28594000	0.36	208000000	0.318120443	0.203614079	
Chameleon Mining(2)	1	0.026408937	-0.806875249	-0.727317307	10.25805775	3.426217642	161023	-4919754	-4434666	6097292	4166433.25	406162	230961	69938	0.05	83328665	-1.71059331	-0.102241361	
Child Care Centres(3)	1	0.010209266	0.003987845	0.023610725	4.6506711783	5.121842603	1065000	416000	2463000	104317000	102221765.8	21980000	22283000	21218000	1.4	73015547	0.017470428	0.005226267	
China Convergint(4)	1	0.079748654	-26.66066427	-0.261472172	0	-88.14770736	4442000	-1484999000	-14564000	55700000	0	40252000	19450000	15008000	0	3720466848	-0.062133559	-0.151796553	
Clifford Corporation	1	0.16762133	0.012334731	-0.003494212	0	1.116326045	20982000	1544000	-437388	125175000	0	69474000	60931000	39949000	0	129008664	-0.11676854	-0.065801646	
Coplex	1	0.259096855	-0.129594488	-0.172540855	3.73293081	4.037300142	28126000	-14068000	-18730000	108554000	19090208.16	5114000	33237000	5111000	0.09	212113424	-1.122604615	-0.044167654	
Cudgen Rz	1	-0.098350684	-0.369106171	0.156389579	0	-0.797528633	-11318000	-42476000	17997000	115078000	0	10318000	54180000	65498000	0	36651160	0.102597403	0.051728098	
Denehurst	1	0.011136793	-2.270044727	-0.229429952	0	-8.869057725	371000	-75622000	-7643000	33313000	0	35814000	15928000	15557000	0	71058832	0.333026191	0.166820521	
Ecotec	1	0.13914949	0.075007419	-0.144993038	0.193298392	0.385954934	6096000	3286000	-6352000	43809000	4988451.6	25807000	24020000	17924000	0.36	13658810	0.006238617	0.002168993	
Farnell & Thomas	1	0.001144539	0.00147155	0.036111371	0	0.254973839	49000	63000	1546000	42812000	0	24597000	21440000	21391000	1.21	0	-0.129603902	-0.046808011	
Federation Group	1	-0.354002933	-10.48916904	-0.087118579	1.184935055	-41.13184087	-1857795	-55046792	-4575626	5427965	3118455.2	2631752	773957	737957	0.04	77961380	-0.374038663	-0.207155884	
Golden West Refining	1	-0.074130518	-0.883198171	0.277581233	1.768836452	0.357101929	-1362000	-16227000	5100000	18373000	20578643.28	11634000	2103000	3465000	0.36	57162898	0.564380265	0.002145832	
Greyhound Pioneer	1	-1.184785203	-1.488186158	0.208949881	0.184050749	-11.02628132	-19857000	-24942000	3502000	16760000	4827651.15	26230000	4982000	24839000	0.35	13793289	0.148417842	0.053067067	
Henry Walker Eltin	1	0.226991769	0.066729429	0.034027562	0.362755547	2.316162485	165403000	48624000	24795000	728674000	173262206.5	477628000	421041000	255638000	0.86	201467682	0.093409515	0.035720262	
Huadu	1	0.016706309	-0.938611394	0.058896817	573.3985714	599.5140069	295000	-16574000	1040000	17658000	20068950	35000	330000	35000	0.55	36489000	33.4	0.779333333	
Investment Austasia	1	0.118946836	-0.005049576	-0.000529113	0.535024128	1.322049323	10341000	-439000	-46000	86938000	7534744.8	14083000	24023000	13682000	0.15	50231632	0.177732017	0.134072527	
Ion	1	-0.00094372	0.077794876	0.123799383	1.135751801	2.27189174	-647000	53335000	84875000	685585000	441279325.9	388550000	147009000	147656000	1.74	253608808	0.157365488	0.073164369	
Jennings	1	-0.321110464	-2.254002425	-0.033184088	0.291199189	-9.37177047	-67272000	-472209000	-6952000	209498000	128552712.3	441367000	27394000	94666000	0.22	584207783	0.057113468	0.046921738	
Kinetic Power(1)	1	-0.195776857	-0.071240157	-0.10446211	0	-2.218524477	-1795820	-653471	-958209	9172790	0	3428760	1495586	3291406	0	6397503	-0.214757813	0	
Laverton Gold	1	-1458.555556	-6617	-13.777777778	0.431316653	-31231.67823	-13127000	-59553000	-124000	9000	5665775.55	13136000	9000	13136000	0.03	188859185	0	0	
Macraes Mining	1	0.177283236	-0.358597613	-0.774161493	0	-5.208415409	21755950	-44006596	-95004012	122718597	0	14723238	36454230	14698280	0	126816024	1.275759789	0.238517516	
Milnes Holdings	1	0.194909546	0.090338803	0.072540635	0.824851612	2.926678382	15451358	7161564	570623	79274506	38786078.45	40721886	39796307	24344949	0.95	40827451	0.074039927	0.02687103	
MIM Holdings	1	0.007692673	0.049954889	0.064343036	0.84666513	1.534700461	4860000	315600000	406500000	6317700000	2597060619	3067400000	1193100000	1144500000	1.3	1997738938	0.205222664	0.117974475	
National Forge	1	-0.145066254	-0.37062415	-0.12091073	0.068986553	-2.899953806	-5441000	-13901000	-4535000	37507000	2300977.5	33354000	21419000	26860000	0.05	46019550	-0.110631490	-0.061131175	
Newmont Yandal	1	0.34607362	-1.122990336	0.007485116	0.663348645	-0.643889496	175369000	-569063000	3793000	506739000	475799419.5	717269000	234942000	59573000	1.54	308960662	0.079562898	0.133223458	
Non-feral Recyclers(3)	1	0.015483871	0.009795352	0.057176552	0.169958002	0.696189374	1116000	706000	4212000	72073000	8810112.96	51783000	47560000	46444000	0.27	32630060	0.026641202	0.008117847	
Osler Gold	1	-0.319798115	-0.732365588	-0.012701656	0.3871155	-4.164271307	-18120787.97	-14498185.59	-719716.61	56663210.64	25019019.9	64629341.63	7945394.85	26066182.82	0.3	83396733	0.113673431	0.204916255	
Pasminco	1	-7.011592226	-12.27548585	-1.586089328	0.023942463	-96.64750958	-2056500000	-3600440000	-465200000	293300000	2349000000	2933000000	2349800000	0.05	1125200000	0.073410503	0.073040606		
Phoenix Technology(3)	1	0.295882465	-2.65042042	-1.22767558	43.99644525	31.24690467	942957	-8446707	-3912518	3186931	17613668.88	400343	1343300	400343	0.41	42960168	-0.158666444	-0.764777989	
Planar Semiconductor(4)	1	-0.702590671	-2.664248704	-1.036787566	4.124187832	-15.9312608	-2394913.45	-908195.61	-3534086.9	340869.51	18122535	4394206.99	1949841.05	4344754.5	0.18	100680750	-0.69051447	-0.856003985	
Recruiters Australia(4)	1	0.052392326	0.005470375	0.053162801	2.207914866	3.037091717	2720000	284000	2760000	51916000	30241809.92	13697000	13776000	11056000	0.56	54003232	-0.149448784	-0.033816824	
RGC	1	0.166008928	0.079187423	0.056867439	0	1.729318755	256600000	122400000	87900000	1545700000	0	744400000	442700000	186100000	0	210031000	0.219102633	0.137718483	
Ross Mining	1	-0.126439069	0.07339606	0.132394326	1.149951381	1.506969687	-2668800	15492000	27945000	211074000	135012341.8	117407000	13650000	40338000	0.64	210956784	0.271815139	0.256401398	
Sons of Gwalia	1	0.010565536	0.112764917	0.041202511	0.511189687	1.250553587	14757000	157500000	57548000	1396711000	383541532.4	750292000	140556000	125799000	2.3	166757188	0.034299979	0.0354357	
Stanilite(4)	1	0.243184679	0.104133562	0.077842211	0	2.457866562	47136000	2018400	15088000	193828000	0	94329000	99028000	51892000	0	87121405	-0.131179171	-0.094250807	
Stockford(4)	1	0.218773178	-1.78619894	-0.110265637	1.343635334	-3.718024478	15928000	-130046000	-8028000	72806000	41866333.38	31159000	39052000	23124000	0.18	232590741	0.143201001	0.036036473	
Starch International	1	0.16852975	-2.158386791	0.063330317	0.561478862	-4.915653241	1063704	-13623023	399720	3311669	2861872.92	5097027	6024891	4961187	0.06	47697882	-0.369927803	-0.432776521	
Target Resources	1	0.216396708	-1.338298229	-0.151785587	0	-3.963288667	1277472	-7900483	-896048	5903380	0	432706	1710178	432706	0	266920016	-1.33190203	-0.121383359	
Air New Zealand	0	0.029258098	-0.11536052	0.046394984	0.367070994	0.513													

Modified Data Worksheet Combined1 -	Failure	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/	CA	CL	Share price	No. shares	CFFO/TD	CFFO/TCI
Mt Gibson Iron	0	0.289634231	0.070473265	0.107776071	9.678491944	13.01641515	41493000	10096000	15440000	143260000	329688149.6	34064000	65924000	24431000	0.82	402058719	-0.246036872	-0.096918184
Midas Resources	0	0.065058617	-0.449904459	-0.191695165	6.945640707	4.964827228	656570	-4540425	-1934583	10091976	6835857.91	984194	1640764	984194	0.07	97655113	-0.525096678	-0.139398178
Newcrest Mining	0	-0.079291398	0.155409246	0.002084123	1.728645011	1.815565136	-334800000	656200000	8800000	4222400000	7021237442	4061700000	617100000	951900000	21.08	333075780	0.064948174	0.122016651
National Hire Group	0	0.043013208	0.049921967	0.074444148	0.826915622	1.813438341	20340000	23607000	35203000	472878000	198577171.3	240142000	86119000	65779000	1.66	119624802	0.161933356	0.088035008
Nylax	0	-0.075805945	-2.824640796	-0.108637802	0.442418583	-9.97112251	-15696000	-584856000	-22494000	207055000	60667975.5	137128000	116795000	132491000	0.06	1011132925	-0.015350621	-0.003527553
Newmont Mining	0	0.120497427	0.053887936	0.077586168	5.08656905	6.828414344	2297941938	1027667984	1479604282	19070464768	32480000000	6385443642	4137931034	1839989096	7.25	4480000000	0.265314835	0.593317422
Programmed Maintenance Services	0	0.323887164	0.300433489	0.109552924	1.403168821	5.31363588	100120000	92870000	33865000	309120000	256886535.1	183076000	160736000	60616000	3.61	71159705	0.035018244	0.020518549
Orica	0	0.206621125	0.237852514	0.033631109	2.284965617	4.75604872	1179600000	1357900000	192000000	5709000000	6948123449	3040800000	2479700000	1300100000	22.47	309217777	0.136115496	0.054526532
Rio Tinto	0	0.090427138	0.399053787	0.240781129	4.883879997	8.640240558	3673163418	16209622462	9780564263	40620144473	93617130000	19168597519	10196265504	6523102085	69	1356770000	0.493671786	0.741456642
Qantas	0	-0.019647297	0.072380664	0.041880177	0.441674292	0.852267492	-376900000	1388500000	803400000	19183300000	5786904914	13102200000	5052800000	5429700000	2.96	1955035444	0.15463052	0.127334892
Steamships Trading	0	0.023391724	0.533253149	0.188381999	3.711461661	7.054816757	3378845.57	77026388.34	27211062.97	144446194.9	161862997.1	43611658.13	43143844.91	39764999.34	5.22	31008237	0.643788194	0.159316823
Santos	0	0.039571657	0.150243083	0.174729055	2.255816532	4.292169131	245000000	930200000	1081800000	6191300000	7280196695	3227300000	912100000	667100000	12.25	594301771	0.451739844	0.491786136
Woodside Petroleum	0	-0.028741019	0.421282275	0.205382203	7.532020701	10.47362927	-200307000	2936075000	1431386000	6969377000	26126666680	3468746000	732133000	932440000	39.19	666666667	0.494319273	0.546976691
Transfield	0	-0.054718372	0.055812806	0.073158983	1.198509075	1.573060118	-82695000	84349000	110564000	1511284000	1392131811	1161553000	513262000	595957000	8.6	161875792	0.130613928	0.070405149

CFFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC		F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	Fe1	Fe2		
-0.61654103	0.899849777	0.098095101	11.38885494	-930673	1509507	1047282	1509507	1509507	1677510	1000000	10194189	1677510	0	147294	1	1	1	2	1	1	1	4	3	4	4	1	1	4	29	3	
0.00474638	0.661335813	0.267817775	21.4375516	27262	9462410	936441	5743746	9462410	14308026	3718664	13885053	5353464	1320153	311305	1	1	4	1	1	1	3	4	3	4	1	3	1	4	32	4	
-0.295655015	0.585031039	1.60729671	0.304240224	-10860000	68231000	95974000	36732000	68231000	116628000	42161000	26231000	43010000	30750000	242440000	1	1	2	4	1	1	3	4	3	4	3	1	4	4	36	5	
-0.374423341	0.214699013	0.255879579	3.464002515	-2065579	17471258	24674847	5516694	17471258	81375586	12071635	47177016	52264671	119229	15122362	1	1	1	4	1	1	3	3	3	1	4	1	4	4	32	4	
-0.013298877	0.772183156	0.049622036	0.006825405	-669000	61604000	41255000	50305000	61604000	79779000	7851000	158216000	131000	0	19193000	1	2	1	3	1	4	3	1	1	1	1	1	1	4	25	2	
1.079256731	0.402194654	0.366960627	39.84267913	34152000	82834000	171116000	31644000	82834000	205955000	16478000	44904000	81216000	21100000	2568000	2	1	1	3	3	1	1	2	4	2	2	1	4	1	28	3	
0.840521928	0.144318954	0.164936127	52.54265873	2319000	6798000	14819000	2759000	6798000	47104000	5242000	31782000	51894000	1069000	1008000	1	1	1	2	1	2	3	1	2	4	2	1	1	1	23	2	
0	7.133049242	1.749368246	1.650387597	0	180780000	0	180780000	180780000	25344000	65073000	37198000	1629000	500000	1290000	2	2	1	4	1	1	2	5	4	5	3	4	4	4	42	5	
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0.018097841	0.210703912	0.187705228	0.192403322	384000	21980000	73475000	21218000	21980000	104317000	15377000	81921000	3637000	0	18903000	1	4	2	3	1	1	1	3	1	1	2	1	1	1	23	2	
-0.166644456	0.722657092	0.017820353	9.967002237	-2501000	40252000	16476000	15008000	40252000	55700000	13260000	744093000	17491000	330000	1788000	1	1	2	3	1	1	1	2	1	2	3	1	1	1	4	24	2
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33.4	0.001982104	0	125.0647482	1169000	35000	1500000	35000	35000	17658000	0	34489000	17384000	0	139000	1	1	1	2	1	1	1	3	4	2	1	1	1	3	23	2	
0.18294109	0.161989004	0.529683456	22.21637675	2503000	14083000	18669000	13682000	14083000	86938000	13303000	25115000	52364000	0	2357000	1	2	1	2	1	1	1	1	2	2	2	1	1	4	22	2	
0.414084087	0.566720392	0.841687808	1284.882217	61142000	388535000	835680000	147656000	388535000	685585000	196742000	233747000	508152000	48202000	433000	1	2	1	1	1	1	1	3	1	1	1	1	1	1	3	19	1
0.266283565	2.106783836	1.208840002	-39.17927632	25208000	441367000	537235000	94666000	441367000	209498000	353107000	292104000	24768000	94337000	-3040000	1	3	2	3	1	1	2	3	3	3	4	2	3	3	34	4	
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1.277926057	0.119975606	0.070619276	7.575851465	18783315	4723238	79416169	14698280	4723238	122718597	1599965	22656208	111879842	17156610	17156610	1	1	1	3	1	1	1	3	1	1	2	1	1	3	21	2	
0.143006954	0.593152684	0.931481914	47.34587218	3481497	47021886	129563212	24344949	47021886	75274456	23397557	25118638	52673487	15351263	1436762	1	1	2	1	1	1	1	2	1	1	1	1	2	1	2	18	1
0.550021844	0.485524795	0.747381223	33.1138756	629500000	3067400000	5335900000	1144500000	3067400000	6317700000	1905000000	2548900000	6205900000	7149000000	2090000000	1	1	2	2	1	1	1	1	1	1	2	1	1	2	18	1	
-0.137379002	0.889274002	1.171080192	21.33311688	-3690000	33354000	36032000	26860000	33354000	37507000	15655000	13368000	26053000	6800000	154000	1	1	1	1	1	1	1	2	1	4	3	1	4	24	2		
0.95795075	1.415460424	1.357498473	2.574956927	57068000	172769000	428363000	59573000	171269000	506739000	486708000	358533000	242308000	29695000	105634000	2	1	2	2	1	1	2	4	2	3	5	1	3	3	32	4	
0.029734734	0.719209157	1.585507062	47.62286689	1381000	51837000	170119000	46444000	51837000	24921000	15718000	39083000	16731000	1172000	1172000	1	1	1	2	1	5	2	3	2	1	3	1	1	3	27	3	
0.281845603	1.140587356	0.971196455	3.112821782	7346639.02	64629341.63	35851909.46	26066182.82	64629341.63	56663210.64	29540349.06	30416450.67	106503369.6	2152237.77	3490582.34	1	1	3	2	1	1	1	3	2	3	2	3	1	3	27	3	
0.073410503	8.011592226	1.417319775	0	172500000	2349800000	2361700000	2349800000	2349800000	2933000000	2188200000	1543900000	0	0	2878000000	1	1	3	4	1	1	4	2	4	3	4	3	4	3	36	5	
-9.158666444	0.125620228	0	0.148228478	-3666608	400343	4794343	400343	400343	3186931	0	11233925	196552	0	1326007	1	1	3	1	1	1	1	1	1	3	1	3	1	3	21	2	
-0.698373984	1.289119169	0	23.46551754	-3034263.51	4394206.99	3544683.86	4344754.5	4394206.99	3408689.51	0	8096079.12	1418226.78	985517.48	102437.3	1	1	1	1	1	1	1	1	1	1	1	1	1	2	15	1	
-0.185148336	0.263830033	0.086041914	3.35504886	-2047000	13697000	60532000																									

CFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC	Fi1	Fi2	Fi3	Fi4	Fi5	Fi6	Fi7	Fi8	Fi9	Fi10	Fi11	Fi12	Fe1	Fe2		
-0.343047767	0.237777468	0.067253112	27.76319261	-8381000	34064000	86475000	24431000	34064000	143260000	5841000	86851000	120582000	5685000	4548000	1	1	1	3	1	1	1	1	1	1	2	1	1	1	17	1
-0.525096678	0.097522428	0.056415355	0.050998405	-516797	984194	3707344	984194	984194	10091976	754203	13368754	61564		1207175	1	1	1	3	1	1	1	1	1	2	1	1	1	1	17	1
0.277129951	0.961941076	1.98986569	19.27058824	263800000	4061700000	2162000000	951900000	4061700000	4222400000	1629700000	819000000	2768400000	1800000000	1530000000	1	1	1	3	1	1	1	1	1	2	1	1	1	1	17	1
0.591176515	0.507830772	0.969130236	5085.434211	38887000	240142000	441722000	65779000	240142000	472878000	200954000	207355000	356275000	30218000	76000	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1
-0.015887872	0.662278139	0.095049257	45.75139442	-2105000	137128000	596731000	132491000	137128000	207055000	62270000	655134000	61150000	53686000	2510000	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1
0.920740741	0.334834191	0.266289343	11.35397412	1694152924	6385443642	2855390487	1839989096	6385443642	19070464768	2629139975	9873245196	15138339921	1605560856	1474717187	1	1	1	3	1	1	1	1	1	2	1	1	1	1	17	1
0.105764155	0.592248965	2.973895139	14.91496859	6411000	183076000	312449000	60616000	183076000	309120000	80884000	27198000	71135000	26215000	6527000	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1
0.318360126	0.532632685	1.608242365	3.382915469	413900000	3040800000	7590800000	1300100000	3040800000	5709000000	1311200000	815300000	2834600000	579100000	1009100000	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1
1.450689511	0.471898802	3.345927792	14.61958806	9462995775	19168597519	12762709554	6523102085	19168597519	40620144473	5431375221	1623279269	44420062696	2983508246	3242469674	1	1	1	2	1	1	1	1	1	2	1	1	1	1	16	1
0.373132954	0.683000318	1.437912996	6.926602343	2026000000	13102200000	15910800000	5429700000	13102200000	19183300000	6267000000	4358400000	19766200000	334800000	2902000000	1	1	1	2	1	1	1	1	1	2	1	1	1	1	17	1
0.706064908	0.301923205	1.251404958	247.7831389	28076670.61	43611658.13	176231674.8	39764999.34	43611658.13	144446194.9	13252811.69	10590346.16	164687759.8	12819132.64	716380.03	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1
2.185429471	0.521263709	1.123187515	46.94851658	1457900000	3227300000	2964500000	667100000	3227300000	6191300000	1828100000	1627600000	10616600000	144000000	229200000	1	1	1	2	1	1	1	1	1	2	1	1	1	1	16	1
1.83890438	0.497712493	2.019022226	23.25641466	1714668000	3468746000	3134810000	932440000	3468746000	6969377000	1127527000	558452000	5349614000	66898000	232904000	1	1	1	2	1	1	1	1	1	2	1	1	1	1	16	1
0.254573736	0.768586844	2.371381718	6.044497504	151715000	1161553000	2154885000	595957000	1161553000	1511284000	672429000	283560000	784748000	50662000	138210000	1	1	1	1	1	1	1	1	1	2	1	1	1	1	15	1

**Modified Data Worksheet Fail3 -
Most recent year less 2; T-2**

	Failure ranking	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/ total liabs	CA	CL	Share price
Aerosonde	1	0.100635834	-0.822273888	-0.195616255	92.01913125	93.28510478	462713	-3780729	-899423	4597895	3620400.7	39344	502057	39344	0.14
Alamain	1	0.043152211	-0.4851274	-0.020300036	0.061941804	-1.369814166	908159	-10,209,739.00	-427,224.00	21,045,480.00	694,000.00	11,204,065.00	10,274,187.00	9,366,028.00	0.01
Australian Goldfields	1	-2.338345865	-214.969248	-1.947368421	5.238095238	-723.7278195	-311000	-28591000	-259000	133000	1650000	315000	4000	315000	0.02
Australian Kaolin	1	0.031150725	-0.347087905	-0.065337352	17.93005677	17.46033478	441039	-4,914,149.00	-925,061.00	14,158,226.00	20,160,000.00	1,124,369.00	504,750.00	63,711.00	0.28
Australian Plantation Timber	1	0.258899676	-5.108432421	0.079633468	0.974592452	-13.39664884	7120000	-140487000	2190000	27501000	9523717.44	9772000	15821000	8701000	0.12
Australian Resources	1	0.067682735	0.282097293	0.116263816	0	2.144928761	14446000	60210000	24815000	213437000	0	70982000	35122000	20676000	0.00
Australian Topmaking Services	1	0.185467588	0.052557788	0.071906891	5.50377451	7.650183302	8517287	2413628	3302203	45923318	28155571.2	5115684	13600637	5083350	0.18
Barrack Mines(2)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carlovers Carwash	1	-0.194916072	-0.601340922	0.058505886	1.168097178	-1.619341104	-4041000	-12467000	1213000	20732000	10347004.8	8858000	2003000	6044000	0.12
Centaur Mining	1	0.145878982	-0.177648612	-0.009850651	6.058533217	6.673095152	99591000	-121280000	-6725000	682696016	2508729600	414082008	165601000	66010000	5.7
Central Norseman Gold	1	-0.099247427	0.040290916	0.175545839	1.722032495	2.468087419	-6673000	27090000	11803000	67236000	99840000	57978000	28736000	35409000	0.48
Chameleon Mining(2)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Child Care Centres(3)	1	-0.312678063	0	0.224738841	7.93220339	7.787890482	-6585000	0	4733000	21060000	52416000	6608000	23000	6608000	1.8
China Convergent(4)	1	0.008363378	-0.051250128	-0.014496069	2.501692551	2.417151935	12320000	-75496000	-21354000	1473089000	392898320.2	157053000	62825000	50505000	0.11
Clifford Corporation	1	0.100757635	0.044156318	0.080033326	0	1.342743628	3870000	1696000	3074000	38409000	0	12567000	15804000	11934000	0
Coplex	1	0.091120184	-0.292214696	-0.023683821	2.763110724	2.38723948	8955619	-28719910	-2327731	98283592	49904062	18060826	27016445	18060826	0.26
Cudgen Rz	1	0.083344612	0.225980565	0.104436564	0	1.985251008	15395000	41742000	19291000	184715000	0	51404000	45111000	29716000	0
Denehurst	1	-0.071220049	-0.089937702	-0.013763314	0	-0.852889899	-12564000	-15866000	-2428000	176411000	0	103026000	39445000	52009000	0
Ecotec	1	0.17107647	0.090318762	0.062277779	0.367692129	2.24782822	9537000	5035000	3692000	55747000	13312293.54	36205000	32970000	23433000	0.98
Farnell & Thomas	1	-0.100912067	-0.296538821	0.015434986	1.667031462	0.225406422	-863000	-2536000	132000	8552000	7181571.54	4308000	3038000	3901000	0.97
Federation Group	1	0.020495971	-3.804494942	-0.384787816	42.47765029	29.74755874	187202	-34748735	-3514498	9133600	33214803.96	781936	969138	781936	1.56
Golden West Refining	1	0.223997846	0.048226928	0.235036982	1.118121189	4.380121422	14143000	3045000	14840000	63139000	39270652.4	35122000	38531000	24388000	0.7
Greyhound Pioneer	1	-0.674737295	-1.522706323	-0.000798869	0.113497655	-9.276495133	-1098000	-24779000	-13000	16273000	2903383.5	25581000	4416000	15396000	0.3
Henry Walker Eltin	1	0.213281622	0.07384308	0.047730179	0.222893905	2.19464129	163770000	56701000	36650000	767858000	119122526.9	534436000	374287000	210517000	0.72
Huadu	1	-0.018841127	0.048666918	0.06509897	25.76050664	27.52105342	-1048000	2707000	3621000	55623000	31015650	1204000	156000	1204000	0.85
Investment Austasia	1	0.283007843	-0.016007996	0.007950177	20.93	23.83427057	18404000	-1041000	517000	65030000	17581200	840000	18725000	321000	0.35
Ion	1	0.031111121	0.024575115	0.102237197	2.183553644	3.263969117	13980000	11043000	45941000	449357000	595509667.6	272725000	128550000	114570000	2.82
Jennings	1	-0.187948898	-0.872473209	0.016247836	0.039420743	-3.926630196	-100407000	-466097000	8680000	534225000	33178744.16	841657000	198308000	298715000	0.16
Kinetic Power(1)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laverton Gold	1	-0.339505833	-0.444632358	-0.166051539	0.169150783	-4.614917771	-21422777	-28056248	-10477832	63099879	7554367.36	44660552	9820039	31242816	0.04
Macraes Mining	1	0.2198185	0.069178153	0.056903104	0	2.049918994	44208689	13912730	11444039.62	201114506	0	37646100	62953688	16744999	0
Milnes Holdings	1	0.155018376	0.111031705	0.163154796	1.327549308	3.869210907	10716598	7675749	11279078	69131146	51523161.75	38810733	35459810	24743212	1.35
MIM Holdings	1	0.004692708	0.035611953	0.053973452	0.376026425	0.904408473	32100000	243600000	369200000	6840400000	1545807031	4110900000	1509500000	1477400000	0.9
National Forge	1	0.019651521	-0.07424247	-0.107991822	0.322002682	-0.500718703	644000	-2433000	-3539000	32771000	5522346	17150000	13693000	13049000	0.12
Newmont Yandal	1	-0.005622852	-0.256323229	0.081125946	0.804700722	0.51760248	-4251000	-193786000	61333000	756022000	475799419.5	591275000	40163000	44414000	1.54
Non-ferral Recyclers(3)	1	0.063267233	0	0	0	0.41503305	2144000	0	0	33888000	0	35563000	33888000	31744000	0
Otter Gold	1	-0.056261458	0.118803088	0.061583745	0.28196673	0.728130736	-7114551.58	15023263.28	7787582.22	126455158	21745547.46	77120969.04	19438472.65	26553024.23	0.42
Pasminco	1	-0.529525328	-1.193729802	-0.002895874	0.015436807	-7.368496939	-1261700000	-2844300000	-6900000	2382700000	56257899.95	3644400000	2382700000	3644400000	0.05
Phoenix Technology(3)	1	0.685545294	-0.221783276	-0.166158723	417.898523	441.4510262	3659122	-1183776	-886878	5337535	13128700	31416	3690538	31416	0.5
Planar Semiconductor(4)	1	0.904043955	-0.199405617	-0.199405617	91.70930924	100.235235	3213815.88	-708873.65	-708873.65	3554933.21	27880623.22	304010.83	3517826.71	304010.83	0.34
Recruiters Australia(4)	1	0	0	0	0	0	0	0	3500000	0	0	0	0	0	0
RGC	1	-0.008958549	0.178822804	0.043849525	0	0.818863067	-15206000	303529000	74429000	1697373000	0	930255000	386022000	401228000	0
Ross Mining	1	0.262612147	0.21662626	0.088296607	7.568587113	10.96930696	34013000	28057000	11436000	129518000	176893018	23372000	47768000	13755000	0.89
Sons of Gwalia	1	0.105283076	0.136211506	0.133806692	2.59997641	4.763862682	78454000	101501000	99709000	745172000	1103801785	424543000	160857000	82403000	9.07
Stanilite(4)	1	0.116531275	0.139339072	0.130043514	0	2.092582953	8650000	10343000	9653000	74229000	0	40045000	38020000	29370000	0
Stockford(4)	1	0.18111878	-0.003401542	0.118391915	0	0	23801000	-447000	15558000	131411000	0	10310000	32841000	9040000	0
Strach International	1	-0.405040462	-4.164081307	0.252607902	0.386716799	-14.12839275	-1543770	-15870967	962789	3811397	1907915.28	4933624	3298624	4842394	0.04
Target Resources	1	0.033859177	-1.952674105	-0.462870335	0	-9.254090035	88000	-5075000	-1203000	2599000	0	641000	729000	641000	0
Air New Zealand	0	0.125631286	-0.195182742	0.061462981	0.455229177	437292616.2	-679384685.5	213938012.8	3480762078	1080535627	2373608022	1458470374	1021177758	0.36	
Alcoa	0	0.052221627	0.229604869	0.05868626	1.81568478	3.391926432	2208000000	9708000000	2481333333	42281333333	44293024986	24394666667	8986666667	6778666667	51
Amadeus Energy	0	0.120293785	0.159625219	0.135943989	10.03662817	12.76150863	3505000	4651000	3961000	29137000	62769072.6	6254000	5508000	2003000	0.52
BHP	0	0.052182559	0.350492319	0.168414638	3.412239723	6.199520621	2361736101	15862969952	7622296415	45259108724	78032260999	22868340833	9658876470	7297140369	12.53
Bluescope Steel	0	0.061897926	0.225333356	0.141419208	1.906835043	4.093515109	357900000	1302900000	817700000	5782100000	4935842509	2588500000	2043700000	1685800000	6.74
Brambles	0	0.002075827	0.176262436	0.088281796	1.672386992	2.937492977	19300000	1638800000	820800000	9297500000	10145368446	6066400000	1780500000	1761200000	6
Cabcharge	0	0.410374738	0.341847428	0.193214818	12.16984108	17.8832176	65005000	54150000	30606000	158404000	385479716.1	31675000	93479000	28474000	3.44
Caltex	0	0.101962904	0.242238555	0.122554573	0.804780943	3.127161057	282809000	671884000	339923000	2773646000	1247400000	1549987000	1100801000	817992000	4.62
Capral Aluminium	0	0.155079436	0.228951265	-0.01219181	2.172832641	3.963247533	47967000	70816000	-3771000	309306000	217335412	100024000	116778000	68811000	2.68
Coffey International	0	0.1777704358	0.178632415	0.199569382	2.337404176	5.5436462892	9574000	9624000	10752000	53876000	66693153.36	28533000	37015000	27441000	5.52
CSR	0	0.030128942	0.085961105	0.111791991	1.478760896	2.78182018	70800000	202000000	262700000	2349900000	1781906880	1205000000	481300000	410500000	1.94
Goldstream Mining	0	0.592317729	-2.621993147	-0.275575754	15.73895083	10.01193594	5331982	-23602907	-2480704	9001895	48212230.95	3063243	8366479	3034497	0.39

Hill End Gold	0	0.1254537	-0.249495527	-0.1034667	14.20543544	14.23003184	654160	-1300958	-539512	5214354	5909347.5	415992	1070152	415992	0.14
Hills Industries	0	0.271692639	0.227385811	0.135681632	2.790097791	6.364964702	116307000	97340000	58083000	428083000	540581447	193750000	230329000	114022000	3.86
Illuka Resources	0	0.063928777	0.143136129	0.065249856	1.318476061	2.708875452	111300000	249200000	113600000	1741000000	1054649001	799900000	410400000	299100000	4.53
James Hardie	0	0.201709226	0.133340198	0.180910214	4.793926183	8.007240697	261095561.8	172597627.6	234172997.5	1294415567	2980629834	621751299.5	486738637.9	225643076.1	6.5
Leighton Holdings	0	-0.051958863	0.180712256	0.059979241	1.312216263	2.029159391	-142621000	496034000	164636000	2744883000	2478734529	1888968000	1738187000	1880808000	9.09
John Shearer	0	0.415168551	0.346039002	0.082205885	2.328806807	6.849263539	20161000	16804000	3992000	48561000	27764034.75	11922000	29589000	9428000	2.25
Kimberley Diamond	0	0.03458744	-1.270688713	-0.091093076	38.02476057	35.39830153	1709000	-62786000	-4501000	49411000	288836081.3	7596000	8597000	6888000	1.29
Macquarie Infrastructure	0	0.063667746	0.055699342	0.071190496	1.262943063	2.403730616	789750000	690908000	883064000	12404240000	6486574080	5136078000	1406082000	616332000	3.36
Macquarie Airports	0	0.031168183	0.110088971	0.136991656	27.18980297	30.03323037	75511000	266712000	331889000	2422695000	3302147192	121448000	115169000	39658000	3.14
Mt Gibson Iron	0	-0.155693479	-0.450750695	-0.155028521	1.686626492	-1.761630335	-8218552	-23793662	-8183451	52786745	49566189.74	29387769	9491469	17710021	0.17
Midas Resources	0	0.125392517	-0.160163003	-0.09161156	583.8423406	612.7192714	1109555	-1417227	-810639	8848654	7323718.32	12544	1122099	12544	0.12
Newcrest Mining	0	0.027500529	0.078069073	0.069993339	2.891494622	3.94133324	70555000	200293000	179574000	2565587000	4527545652	1565815000	338678000	268123000	13.78
National Hire Group	0	0.27915735	0.027921619	0.041926562	3.267823283	5.635257639	18976000	1898000	2850000	67976000	73695950.68	22552000	30114000	11138000	0.44
Nylex	0	-0.105248946	-1.367991042	0.079009171	0.41039079	-4.188231924	-42485000	-552206000	31893000	403662000	167824388.7	408938000	231714000	274199000	0.26
Newmont Mining	0	0.138137928	0.029285605	0.074406256	6.570423597	8.400610695	2035264000	431481333.3	1096269333	14733564000	29073861600	4424960000	3147290667	1112026667	6.58
Programmed Maintenance Services	0	0.351234841	0.334976207	0.119034509	1.481018031	5.751103831	78462000	74830000	26591000	223389000	178880319.8	120782000	115830000	37368000	2.6
Orica	0	0.07772133	0.229022705	0.130113404	1.857359286	4.081055267	322800000	951200000	540400000	4153300000	4672001549	2515400000	1709600000	1386800000	17.3
Rio Tinto	0	-0.010464682	0.283792201	0.090278643	2.948722567	4.55934544	-336000000	9112000000	2898666667	32108000000	51272388000	17388000000	5442666667	5778666667	37.2
Qantas	0	-0.106303559	0.101074302	0.062489331	0.55350778	0.633262353	-1868200000	1776300000	1098200000	17574200000	6494804941	11733900000	3322000000	5190200000	3.52
Steamships Trading	0	0.123278508	0.475037968	0.06348596	1.46852159	4.325904111	15779873.43	60805724.45	8126318.4	128001819.9	77520592.5	52788187.12	53012780.74	37232907.31	2.5
Santos	0	-0.005998122	0.230649828	0.077304869	1.884783768	3.211082439	-31300000	1203600000	403400000	5218300000	4015343339	2130400000	409500000	440800000	6.87
Woodside Petroleum	0	-0.008706064	0.361131749	0.178618694	4.200783846	6.731318381	-41635000	1727040000	854208000	4782299000	9866666672	2348768000	536951000	578586000	14.8
Transfield	0	0.053188608	0.069557835	0.064829377	1.111439699	2.17834091	46738000	61122000	56967000	878722000	706560000	635716000	280871000	234133000	5.12

No. shares	CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC	
25860005	-23.62927003	-0.540499215	-23.62927003	0.008556959	0	8.158113521	-929670	39344	1720021	39344	39344	4597895	0	8339280	4095838	0	502057	3
69,400,000.00	0.020520231	0.087471266	0.024547225	0.532373935	0.132375224	3.322216432	229,910.00	11,204,065	2628406	9,366,028	11,204,065	21,045,480	1,838,037	13,885,053	10264785	0	3,089,740	4
0	-0.904761905	-0.95	-0.904761905	2.368421053	0	3.5	-285000	315000	300000	315000	133000	133000	0	22529000	14000	0	4000	5
72,000,000.00	-1.337367893	-0.630079844	-23.6018113	0.07941454	0	5.204186511	-1503695	1124369	2386515	63711	1124369	14158226	0	9835606	2170177	0	417006	4
79364312	-2.721449038	-2.392837862	-3.056430295	0.355332533	0	0.011648586	-26594000	9772000	11114000	8701000	9772000	27501000	0	158216000	131000	0	11246000	2
224518096	0.808218985	0.308652868	2.77466628	0.332566518	0.467931587	5.615143674	57369000	70982000	185869000	20676000	70982000	213437000	21012000	44904000	76480000	5984000	14686000	3
156419840	0.970162543	0.210463579	0.97633352	0.111396219	0.082855986	3.609586544	4963045	5115684	23581491	5083350	5115684	45923318	2592064	31283968	36871424	1269265	10566498	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
86225040	0.295552043	0.199481865	0.43315685	0.427262203	0.263506019	90.95366795	2618000	8858000	13124000	6044000	8858000	20732000	6414000	24341000	22723000	834000	259000	5
440128000	0.044073395	0.102387738	0.276473262	0.606539365	3.908071661	2.358975726	18250000	414082008	178244000	66010000	414082008	682696016	344008008	88025000	330724016	6685000	143032000	5
208000000	0.233640346	0.227763392	0.862305908	0.862305908	0.862305908	2.64503386	13546000	57978000	59474000	35409000	57978000	67236000	0	52000000	20016000	3419000	8860000	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
29120000	-0.000756659	-0.081967213	-0.000756659	0.31377018	0.426169388	31.06666667	-5000	6608000	61000	6608000	6608000	21060000	6159000	14452000	932000	0	30000	2
3571802911	-0.36979873	-0.711347909	-1.14994555	0.10661474	0.042335426	5.991682551	-58078000	157053000	81645000	50505000	157053000	1473089000	30700000	725161000	34578000	0	5771000	2
53747000	0.21890666	0.291512133	0.230517848	0.32718894	0.256691166	-19.21666667	2751000	12667000	9437000	11934000	12667000	38409000	3702000	14422000	19413000	5953000	-1320000	3
191938700	-0.138916404	-0.0731906	-0.138916404	0.183762372	0.225645626	0.063835165	-2508945	18060826	34279607	18060826	18060826	98283592	7714314	34187740	615702	406975	16020590	5
36651160	0.602793557	0.318481288	1.042737919	0.278288174	1.695907231	1.786086957	30986000	51404000	97293000	29716000	51404000	184715000	12431000	7330000	39170000	10126000	27600000	3
71058832	0.168520568	0.136673148	0.333826838	0.584011201	0.888599614	26.71252668	17362000	103026000	127033000	52009000	103026000	176411000	63143000	71059000	154908000	7798000	6091000	1
13583973	-0.056732496	-0.018052699	-0.087654163	0.649451988	1.380594817	-28.74550898	-2054000	36205000	113778000	23433000	36205000	55747000	9377000	6792000	20247000	8556000	-1002000	3
7403682	0.090529248	0.024588614	0.099974366	0.503741815	0.891410049	-11.7010582	390000	4308000	15861000	3901000	4308000	8552000	1650000	1851000	6569000	2277000	-756000	2
21291541	-2.644454278	-0.867011941	-2.644454278	0.085610931	0.007264875	-15.15091352	-2067794	781936	2384966	781936	781936	9133600	313119	43100399	3747706	396084	-273501	2
56100932	-0.188116167	-0.006106181	-0.27091258	0.556264749	1.76114082	5.225779133	-6607016	35122000	1082020992	243888000	35122000	63139000	19760000	11220000	25968000	4885000	5904000	4
9677945	-0.085532231	-0.025966936	-0.142114835	1.571990414	2.225873114	41.35587762	-2188000	25581000	84261000	15396000	25581000	16273000	10771000	4839000	25288000	394000	621000	3
165447954	0.139187854	0.057531928	0.353353886	0.696008897	1.678481295	5.920308503	74387000	534436000	1292969000	210517000	534436000	767858000	285983000	170382000	663510000	95663000	128232000	2
36489000	3.104651163	0.914831131	3.104651163	0.021645722	0	380.2260274	3738000	1204000	4086000	1204000	1204000	55623000	0	34489000	55513000	0	146000	2
50232000	-0.278571429	-0.098360656	-0.728971963	0.012917115	0	2.351651634	-234000	840000	2379000	321000	840000	65030000	0	25115000	39369000	0	16741000	2
211173641	0.0559868	0.028970301	0.133272235	0.606922781	0.708510692	13.45362958	15269000	272725000	527057000	114570000	272725000	449357000	113186000	159752000	357513000	39100000	29480000	1
207367151	-0.186805314	-0.086893902	-0.526341161	1.575472881	6.138591844	-17.92125984	-157226000	841657000	1809402000	298715000	841657000	534225000	621115000	101182000	15932000	0	-889000	4
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188591180	0.209673853	0.14580307	0.299721702	0.707775557	0.896850523	111.0785163	9364150	44660552	62442642	31242816	44660552	63099879	34728350	38722562	64334971	4543484	620088	
126711004	0.720565743	0.354035306	1.447132112	0.187187393	0.073830019	3.16950629	27126490	37646100	76620861	18744999	37646100	201114506	1640867	22224930	148771642	9976752	50093360	2
38165305	0.20620113	0.076394781	0.323434848	0.561407343	0.543087063	167.8730306	8002817	38810733	104756069	24743212	38810733	69131146	12278726	22609130	42944260	14443807	341854	1
1717563368	0.197839889	0.199793647	0.550494111	0.600973627	1.05949511	39.43634037	81330000	411090000	4070700000	1477400000	411090000	684040000	2329300000	2198500000	5605000000	558900000	156300000	1
46019550	0.067755102	0.036616878	0.089048969	0.523328553	0.597247157	24.63515625	1162000	17150000	31734000	13049000	17150000	327711000	7984000	13368000	6147000	1280000		2
308960662	0.202058264	0.295602044	2.689962624	0.782087029	1.329054787	108.1600042	119472000	591275000	404165000	44414000	591275000	756022000	476510000	358533000	1008710000	19459000	9506000	4
32630048	0	0	0.1049427526	1.044062658	105.1587302		35563000		31744000		35563000	33888000	20662000	19790000	0	13250000	126000	3
51775113	0.08063325	0.074964462	0.23419232	0.609868116	3.07386259	51.57625075	6218514.36	77120969.04	82952831.7	26553024.23	77120969.04	126455158	53547248.52	17420182.9	130648965.2	6628429.33	2661639.66	3
1125157999	0.024777741	0.039525519	0.024777741	1.529525328	1.929971741	4.965811966	90300000	3644400000	2284600000	3644400000	3644400000	2382700000	2979600000	1543900000	0	348600000	70200000	5
26257400	-28.3022027	-0.170006405	-28.3022027	0.005885863	0	0.005992032	-889142	31416	5230050	31416	31416	5337553	0	2625740	21997	0	3671042	2
82001833	-2.258926993	-0.401581826	-2.258926993	0.085518015	0.056962421	0.010609375	-686738.27	304010.83	1710083.04	304010.83	304010.83	3554933.21	225559.57	3959796.03	37106.5	0	3497519.86	1
50700000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
201219700	0.123797238	0.073047014	0.287026329	0.548055731	4.300270393	9.450929447	115163000	930255000	1576560000	401228000	930255000	1697373000	446897000	103923000	1082658000	164997000	132014000	3
198756200	0.335615266	0.087795487	0.570265358	0.180453682	0	0.450614593	7844000	23372000	89344000	13755000	23372000	129518000	0	29533000	10842000	4665000	34413000	4
121698102	0.227343284	0.144151827	1.171280172	0.569724842	1.105914246	7.487094858	96517000	424543000	669551000	82403000	424543000	745172000	241911000	218743000	517244000	49866000	75745000	5
25340823	0.178374329	0.101640651	0.243207354	0.539479179	1.320653461	40.03162486	7143000	40045000	70277000	29370000	40045000	74229000	16734000	12671000	181212000	18588000	917000	4
181675104	-0.104267701	-0.032305566	-0.118915929	0.078456141	0.00691085	0.20911614	-1075000	10310000	33276000	904000	10310000	131411000	840000	121548000	3918000	0	18736000	3
47697882	-0.076507046	-0.074091617	-0.077948428	1.294439808	0.192529281	-377457	4933624	5094463	4842394	4933624	4933624	3811397	2929297	15214813	587473	568963	953117	2
77929000	-1.762870515	-0.62396466	-1.762870515	0.246633321	0	-1130000	641000	1811000	641000	641000	641000	2599000	0	6673000	0	0	728000	1
3001487852	0.179297716	0.129656784	0.416756529	0.681921938	0.614307998	3.712322309	425582498	2373608022	3282377393	1021177758	2373608022	3480762078	903598906.1	1470921604	3340773929	119171376	932016408	1
868490686	0.132815916	0.739051095	0.477970102	0.576960676	-6.65842491	26.18229167	3240000000	24394666667	4384000000	6778666667	24394666667	4.2281E+10	9694666667	-1.456E+09	16742666667	3365333333	768000000	1
120709755	0.79629																	

42209625	-0.496533587	-0.051978177	-0.496533587	0.079778243	0	0.557481769	-206554	415992	3973860	415992	415992	5214354	0	6099320	565781	0	1014887	1
140047007	0.189950968	0.042256545	0.322771044	0.452599145	1.242122987	15.52731853	36803000	193750000	870942000	114022000	193750000	428083000	84837000	68300000	249429000	89610000	21835000	1
232814349	0.223777972	0.151746355	0.598462053	0.459448593	0.629259502	342.2115385	179000000	799900000	1179600000	299100000	799900000	1741000000	384100000	610400000	1662800000	116700000	5200000	1
458558436	0.348553055	0.888039323	0.960425281	0.480333608	0.716965742	12.10650069	216713315	621751299.5	244035719	225643076.1	621751299.5	1294415567	234306277.5	326802612	1029055045	137544982	96361455.4	1
272688067	0.329654605	0.108294289	0.331084832	0.688177966	0.537035588	2.062343693	622707000	1888968000	5750137000	1880808000	1888968000	2744883000	226549000	421851000	1478840000	42619000	737733000	1
12339571	0.45336353	0.094822898	0.573292321	0.245505653	0.017259354	3.802883179	5405000	11922000	57001000	9428000	11922000	48561000	149000	8633000	43629000	7284000	13388000	1
223903939	-0.202869932	-0.031096134	-0.223722416	0.153730951	0.011427639	60.38235294	-1541000	7596000	49556000	6888000	7596000	49411000	1191000	104221000	38871000	6295000	748000	1
1930528000	0.047894522	0.151108419	0.399119306	0.414058257	0.78852417	2.210511188	245990000	5136078000	1627904000	616332000	5136078000	1.2404E+10	3013573000	3821789000	2791701000	0	1262921000	1
1051639233	0.789325473	0.351569119	2.417217207	0.050129298	0	0	95862000	121448000	272669000	39658000	121448000	2422695000	0	1800176000	0	0	33479000	1
291565822	-0.32766897	-0.274271826	-0.543729451	0.556726296	0.340173776	9.346371082	-9629460	29387769	35109184	17710021	29387769	52786745	13895464	40848134	31588729	2797374	3679086	1
61030986	-33.97265625	-3.448397799	-33.97265625	0.001417617	0	5.256263729	-426153	12544	123580	12544	12544	8848654	0	10053337	5860056	0	1114871	1
328559191	0.170396247	0.198194765	0.995099264	0.610314521	1.407238716	8.833911842	266809000	1565815000	1346196000	268123000	1565815000	2565587000	1113821000	791494000	1339020000	48019000	157013000	1
167490797	0.378547357	0.136232347	0.76647513	0.331764152	0.287575242	2.089533251	8537000	22552000	62665000	11138000	22552000	67976000	12517000	43526000	47622000	11000	22796000	1
645478418	-0.053355276	-0.020858368	-0.079573594	1.013070341	0.446233245	48.16621888	-21819000	408938000	1046055000	274199000	408938000	403662000	228006000	510957000	202612000	66300000	5583000	1
4418520000	0.177403336	0.208788041	0.705920721	0.30033195	0.152591639	5.018780507	785002667	4424960000	3759806667	1112026667	4424960000	1.4734E+10	1436665333	9415098667	7752845333	1040205333	1752029333	1
68800123	0.132130615	0.077629524	0.427076643	0.540680159	2.077459444	34.71879553	15959000	120782000	205579000	37368000	120782000	223389000	43797000	21082000	51208000	20278000	2059000	1
270057893	0.233720283	0.105277295	0.423925584	0.60563889	3.066158454	25.49764943	587900000	2515400000	5584300000	1386800000	2515400000	4153300000	1126200000	367300000	3051900000	744700000	148900000	1
1378290000	0.175753393	0.575879397	0.528841717	0.541547278	4.873387097	76.56962025	3056000000	17388000000	5306666667	5778666667	17388000000	3.2108E+10	8057333333	1653333333	37949333333	2377333333	526666667	1
1845115040	0.17039518	0.140877224	0.385226003	0.667677618	1.477809207	54.68201564	1999400000	11733900000	1.4193E+10	5190200000	11733900000	1.7574E+10	5903700000	3994900000	18507400000	374300000	345300000	1
31008237	0.320741855	0.107179887	0.454742385	0.412401848	2.527024794	627.47161	16931381.1	52788187.12	157971626	37232907.31	52788187.12	128001820	25294287.96	10009513.2	144008768.7	20534805.8	262232.7	1
584475013	0.421188509	0.504412839	2.03561706	0.408255562	0.650438483	34.05220522	897300000	2130400000	1778900000	440800000	2130400000	5218300000	1008700000	1550800000	3670800000	112400000	111100000	1
666666667	0.512129338	0.350270389	2.078987393	0.49113784	1.512228747	30.86735998	1202873000	2348768000	3434127000	578586000	2348768000	4782299000	1068376000	706491000	5449803000	32271000	177601000	1
138000000	0.100362426	0.043187956	0.272503235	0.7234552	2.243237725	9.432029306	63802000	635716000	1477310000	234133000	635716000	878722000	384556000	171429000	520739000	17396000	57054000	1

**Modified Data Worksheet Fail4 -
Most Recent Year less 3; T-3**

	Failure ranking	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/ total liab	CA	CL	Share price	No. shares
Aerosonde	1	0.090469663	-0.236463812	-0.121441829	63.87392372	66.07413978	614067	-1605009	-824292	6787546	5424301.35	84922	698989	84922	0.27	20090005
Alamain	3	-0.060944064	-0.533042488	0.025976979	0.18486793	-1.768834944	-1117663	-9,775,552.00	476,396.00	18,339,161.00	2,082,000.00	11,262,094.00	8,451,686.00	9,569,349.00	0.03	69,400,000.00
Australian Goldfields	3	-6.197674419	-329.3953488	-3.255813953	3.164794007	-1133.041617	-533000	-28328000	-280000	86000	1690000	534000	1000	534000	0.02	-0.803370787
Australian Kaolin	3	-0.020337336	-0.290414382	-0.102498577	7.857475547	6.481395077	-293000	-4,184,000.00	-1,476,697.00	14,407,000.00	16,870,000.00	2,147,000.00	658,000.00	951,000.00	0.70	24,100,000.00
Australian Plantation Timber	1	-0.454331315	-3.764358833	-0.633725922	0.914419126	-18.55072134	-20638000	-170996000	-28787000	45425000	55555534	60755000	40117000	60755000	0.4	138888835
Australian Resources	3	0.101239297	0.272820355	0.13182913	0	2.439415897	19083000	51425000	24849000	188494000	0	54824000	40633000	21550000	0.00	224518096
Australian Topmaking Services	1	0.042707424	0.060369454	0.057652472	4.413208697	5.498258862	1569182	2218131	2118302	36742605	24583028.8	5570330	3836722	2267540	0.22	111741040
Barrack Mines(2)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carlovers Carwash	1	-0.107543388	-0.539081489	-0.014668884	0.513593669	-2.02219183	-2522000	-12642000	-344000	23451000	6035752.8	11752000	3052000	5574000	0.07	86225040
Centaur Mining	3	0.036582225	-0.431456152	-0.040610538	123.4112291	128.1423201	9944000	-117281000	-11039000	271826000	7482176000	60628000	57598000	47654000	17	440128000
Central Norseman Gold	1	-0.078161993	0.010066195	0.300890657	1.969589365	3.610127169	-4853000	625000	18682000	62089000	108160000	54915000	34222000	39075000	0.52	208000000
Chameleon Mining(2)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Child Care Centres(3)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
China Convergent(4)	1	-0.062135648	-0.341147955	-0.069480139	2.767521009	0.919238335	-2340337.62	-12849329.08	-2616967.69	37664974.62	79080663.2	28574548.46	6315861.96	8656199.58	0.77	102702160
Clifford Corporation	3	0.088373119	0.02618667	0.113126413	0	1.425305695	1603000	475000	2052000	18139000	0	2127000	3701000	2098000	0	35454000
Coplex	2	0.012164344	-0.430925023	-0.043500071	2.03792957	0.522488096	776000	-27490000	-2775000	63793000	34549020	16953000	12255000	11479000	0.18	191939000
Cudgen Rz	3	0.051252071	0.21429159	0.051886626	0	1.383482297	8723000	36472000	8831000	170198000	0	52267000	37448000	28725000	0	35786000
Denehurst	3	0.140874026	-0.042476815	0.034698099	0	0.552487965	21859000	-6591000	-5384000	155167000	0	74057000	49185000	27326000	0	67559000
Ecotec	3	0.095450658	0.060714897	0.083666838	0.545218752	1.958807721	5581000	3550000	4892000	58470000	22141333.5	40610000	34542000	28961000	1.65	13418990
Farnell & Thomas	3	-0.009086427	0.082975276	0.063182362	0.495880064	1.156151985	-129000	1178000	897000	14197000	4035471.96	8138000	7000000	7129000	0.78	5173682
Federation Group	3	0.048789779	-6.166511629	-0.068484538	33.89957632	15.35157208	234501	-29638444	-329161	4806355	21559249.15	635974	870475	635974	1.55	13909193
Golden West Refining	3	0.086478441	-0.021569629	0.139103006	2.128170234	3.666332528	3893000	-971000	6262000	45017000	50490838.8	23725000	23268000	19375000	0.9	56100932
Greyhound Pioneer	2	-0.568358292	-0.657792568	0.079138935	3.122678438	-2.062208162	-16396000	-18976000	2283000	28848000	74988000	24014000	5786000	22182000	0.3	249960000
Henry Walker Eltin	3	0.173030302	0.090267237	0.050270164	0.269574244	2.050218437	146602000	76480000	42592000	847262000	158446035.8	587764000	382994000	236392000	0.96	165047954
Huadu	2	0.005343439	0.049019422	0.075206063	18.85673154	20.49980914	282000	2587000	3969000	52775000	28096530	1490000	1772000	1490000	0.77	36489000
Investment Austasia	1	0.278544579	-0.018266181	0.016430753	23.6611585	26.72233577	18970000	-1244000	1119000	68104000	37171680	1571000	20048000	1078000	0.74	50232000
Ion	2	-0.117216311	-0.024590001	0.163052762	1.970677402	2.315823427	-17704000	-3714000	24627000	151037000	191796178.1	97325000	33535000	51239000	1.26	152219189
Jennings	2	-0.348770585	-0.079728567	0.020165608	0.227768765	-2.173180077	-165447000	-37821000	9566000	474372000	167967392.3	737447000	85180000	250627000	0.81	207367151
Kinetic Power(1)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laverton Gold	2	-0.144277599	-0.161865263	-0.0227702	0.725558037	-0.865321617	-13135476	-14736711	-2073069	91043073	43207612.32	59550870	23477380	36612856	0.23	187859184
Macraes Mining	1	0.237625824	0.069849963	0.066655947	0	2.234464248	42470442	12484160	11913299.11	178728226	0	25516790	53757732	11287290	0	126461000
Milnes Holdings	1	0.436684827	0	0.324706951	0	0	10580000	0	7867000	24228000	0	31294000	24228000	13648000	0	26343327
MIM Holdings	2	0.029670312	0.02156216	0.033098809	0.494750045	1.00684143	182600000	132700000	203700000	6154300000	1776449513	3590600000	1022600000	840000000	1.07	1660233190
National Forge	3	0.119231555	-0.093970979	-0.007112201	0.807158266	1.275535799	2917000	-2299000	-174000	24465000	9664105.92	11973000	10237000	7320000	0.21	146019552
Newmont Yandal	1	0.020062341	0.061951971	0.07465688	0.704668805	1.575168855	22109000	68272000	82273000	1102014984	475799434.9	675210016	87101000	64992000	1.54	308960672
Non-ferral Recyclers(3)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otter Gold	1	0.024735752	0.18092525	-0.090715239	0.497060385	0.664389844	3110305	22749772	-11406650	125741277	32618333.16	65622476	22932927	19822622	0.63	51775132
Pasminco	3	0.18777835	-0.221225801	0.056836429	0.137510653	1.036956852	619800000	-730200000	187600000	3300700000	337547399.7	2454700000	2245700000	1625900000	0.3	1125157999
Phoenix Technology(3)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Planar Semiconductor(4)	3	0.904043956	-0.199405616	-0.199405616	0	0	3277110.25	-722834.53	-722834.53	3624945.7	0	309998.16	3587108.41	309998.16	0	82001833
Recruiters Australia(4)	2	0	0	0	0	0	0	0	900000	0	0	0	0	0	0	0
RGC	2	0.092438608	0.18556257	0.038792398	0	1.472016158	96572000	193860000	40527000	1044715000	0	483385000	228442000	131870000	0	200460000
Ross Mining	1	-0.037129864	0.31468658	0.16119322	10.75130538	13.15439543	-2874000	24358000	12477000	77404000	218982588	20368000	11185000	14059000	1.41	155306800
Sons of Gwalia	2	0.049605978	0.125240873	0.169139319	2.076352129	4.050486421	27030000	68243000	92163000	544894000	610794276.8	294167000	97445000	70415000	5.25	116341767
Stanilite(4)	2	0.288437843	0.137979703	0.169030177	0	3.47784887	12875000	6159000	7545000	44637000	0	22133000	28336000	15461000	0	21963035
Stockford(4)	3	0	0	0	0	0	0	0	10516000	0	0	0	0	0	0	181675104
Strarch International	3	-0.442597864	-3.663680515	0.255763191	0.388509718	-12.72037662	-2016737	-16693890	1165408	4556590	2384894.1	6138570	4107441	6124178	0.05	47697882
Target Resources	2	-0.017216643	-5.549497848	-0.954088953	0	-24.61578192	-12000	-3868000	-665000	697000	0	264000	252000	264000	0	42246000
Air New Zealand	0	0.063299967	-0.247817133	0.063091566	0.602466989	0.663929592	204456958.3	-800441767.1	203783831	3229969443	1403274169	2329213375	1196826436	992369477.9	0.48	2923487852
Alcoa	0	0.062126803	0.190338812	0.048305938	1.723967952	3.162838607	3270929000	10021193924	2543270929	52649240551	56602903954	32832921229	11149770399	7878841399	67	844819462
Amadeus Energy	0	0.03008463	0.051378651	0.139230139	1.118054967	2.474433828	551000	941000	2550000	18315000	7590475.17	6789000	2719000	2168000	0.09	84338613
BHP	0	0.021435745	0.296360425	0.112477058	4.184324785	927479772.3	12822894816	4866646689	43267905304	53394020734	24147437818	7984716812	7057237039	8.59	6215834777	
Bluescope Steel	0	0.088868318	0.202267994	0.128652879	1.756336781	3.95107079	422400000	961400000	611500000	4753100000	2919031730	1662000000	1391700000	969300000	3.72	784685949
Brambles	0	0.014928511	0.176934399	0.092830109	1.235427491	2.595754375	142000000	1683000000	883000000	9512000000	7726363531	6254000000	1850000000	1708000000	4.57	1690670357
Cabcharge	0	0.495952701	0.316764375	0.180200223	13.23644632	19.39531571	72294446	46174373	26267576	145768832	332890549.3	25149541	95639852	23345406	2.95	112844254
Caltex	0	0.0877716837	0.171011987	0.076145021	0.320852764	1.981511475	248866000	485187000	216035000	2837152000	577800000	1800826000	1157793000	908927000	2.14	270000000
Capral Aluminium	0	0.169320907	0.211805848	0.029027592	2.751776747	4.885663322	46239000	57841000	7927000	273085000	207371143.9	75359000	116115000	69876000	2.95	70295303
Coffey International	0	0.26817192	0.152270842	0.210649108	2.049833225	5.823497636	10345000	5874000	8126000	38576000	42542238.75	20754000	30207000	19862000	3.75	11344597
CSR	0	0.050594041	0.05													

Hill End Gold	0	-0.124978458	-0.543376081	-0.191879922	0	0	-200884	-873395	-308418	1607349	0	243334	42450	243334	0	20484122
Hills Industries	0	0.234251927	0.235021786	0.147532784	2.683812587	6.112287195	89458000	89752000	56341000	381888000	471747157.4	175775000	198930000	109472000	3.48	135559528
Illuka Resources	0	0.093412339	0.108806785	0.07459045	1.271303425	2.80361148	160800000	187300000	128400000	1721400000	1070946005	842400000	418100000	257300000	4.6	232814349
James Hardie	0	0.163363944	-0.002295795	0.159859836	4.167991757	6.514832621	223989397	-3147779.99	219184890.7	1371106693	2713061566	650927766.7	450298210.7	226308813.8	5.93	457514598
Leighton Holdings	0	0.095925783	0.234705617	0.102602235	2.101432538	4.290404631	207442000	507557000	221880000	2162526000	2714802870	1291882000	1310213000	1102771000	10	271480287
John Shearer	0	0.404598443	0.336888909	0.069852094	1.727606815	6.035816857	17562000	14623000	3032000	43406000	19126335.05	11071000	26413000	8851000	1.55	12339571
Kimberley Diamond	0	-0.153585398	-1.895208605	-0.02982399	3.704377047	-3.496721572	-4712000	-58145000	-915000	30680000	61237056.96	16531000	3209000	7921000	0.36	170102936
Macquarie Infrastructure	0	0.063667746	0.087631407	0.071190496	1.539960736	2.798697706	789750000	1087001000	883064000	12404240000	7909358459	5136078000	1406082000	616332000	4.16	1901288091
Macquarie Airports	0	0.306677212	0.002677969	-0.001565828	66.95752903	72.31541581	576601000	5035000	-2944000	1880156000	2957781888	44174000	620775000	44174000	3.14	941968754
Mt Gibson Iron	0	0.27751848	-0.50302755	-0.032588345	6.709845193	7.006995191	7067645	-12810751	-829937	25467295	30307431.36	4516860	7761640	693995	0.12	252561928
Midas Resources	0	0.30952083	-0.072253938	-0.037199811	96.8607437	103.248707	2977955	-695168	-357906	9621178	6103098.6	63009	3040964	63009	0.1	61030986
Newcrest Mining	0	-0.042767436	0.05100445	0.049223063	2.62148773	2.969061223	-78650000	93798000	90522000	1839016000	2500870458	953989000	237952000	316602000	7.65	326911171
National Hire Group	0	-0.082454053	0.027158535	0.054079069	0.332994561	0.260693872	-3118000	1027000	2045000	37815000	7870659.44	23636000	7038000	10156000	0.28	28109498
Nylex	0	0.224328568	-0.758742704	0.066083209	0.112820465	-0.439365161	134594000	-455235000	39649000	599986000	68426853.04	606511000	326716000	192122000	0.28	244381618
Newmont Mining	0	0.041340515	-0.01814355	0.03562306	2.670806488	3.255779577	741421759.1	-325395619.9	638882020.5	17934507241	20664136400	7737039915	1966188626	1224766867	5.14	4020260000
Programmed Maintenance Services	0	0.356957062	0.30279913	0.115405893	1.01576053	5.17083965	73556000	62396000	23781000	206064000	120183770.1	118319000	105111000	31555000	1.79	67141771
Orica	0	0.120861812	0.219390769	0.12361826	1.686930261	4.110058874	429700000	780000000	439500000	3555300000	3331349880	1974800000	1282600000	852900000	12	277612490
Rio Tinto	0	-0.04792619	0.226590763	0.127541434	2.213012028	3.605031148	-1709000000	8080000000	4548000000	35659000000	46732175000	21117000000	7716000000	9425000000	33.95	1376500000
Qantas	0	-0.047873782	0.084595082	0.045540775	0.495346477	0.787875763	-812600000	1435900000	773000000	16973800000	5801349333	11711700000	3954400000	4767000000	3.27	1774112946
Steamships Trading	0	0.085759582	0.42700115	0.040464422	0.524391903	2.777139025	12538860.11	62431597.13	5916280.34	146209435.5	34729225.44	66227615.67	58916007.64	46377147.53	1.12	31008237
Santos	0	-0.012535709	0.184784243	0.10064276	1.427957753	2.695837373	-66700000	983200000	535500000	5320800000	3508349404	2456900000	525700000	592400000	6.02	582782293
Woodside Petroleum	0	0.003936879	0.322097415	0.221341173	3.067941524	5.784614784	19726000	1613891000	1109045000	5010568000	8253333337	2690186000	616504000	596778000	12.38	666666667
Transfield	0	0.071567581	0.018382192	0.067944725	0.932987022	1.965634209	47549000	12213000	45142000	664393000	436080000	467402000	245049000	197500000	3.16	138000000

CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC
-9.693895575	-0.413756171	-9.693895575	0.012511444	0	10.51675047	-823225	84922	1989638	84922	84922	6787546	0	4010001	6088557	0	578939
-0.035335525	-0.090063772	-0.04158611	0.61410083	0.12191131	5.741639534	-397,952.00	11,262,094	4418558	9,569,349	11,262,094	18,339,161	1,692,745	13,885,053	9326725	0	1,624,401
-0.101131542	-0.803370787	6.209302326	0.024090909	15	-429000	534000	4242000	534000	534000	86000	530000	22000000	15000	0	1000	0
-0.698183512	-5.151202749	-1.576235542	0.14902478	0	4.184261036	-1499000	2147000	291000	951000	2147000	14407000	0	9234000	2180000	0	521000
-0.257756563	-0.143071188	-0.257756563	1.337479362	0	0.042684979	-15660000	60755000	109456000	60755000	60755000	45425000	0	155666000	368000	900000	29706000
0.753629797	0.287512613	1.917262181	0.290852759	0.357206485	12.26024628	41317000	54824000	143705000	21550000	54824000	188494000	16040000	44904000	60625000	6083000	5441000
0.587814546	0.239623803	1.443997019	0.151604112	0.199252889	34.00743902	3274321	5570330	13664423	2267540	5570330	36742605	4452945	22348208	34130114	1061260	1034814
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.14201838	0.086499093	0.299425906	0.501130016	0.391356148	173.0296296	1669000	11752000	19295000	5574000	11752000	23451000	9526000	24341000	22004000	1355000	135000
0.186316553	0.053018178	0.237042011	0.223039739	0.019893783	2.213814004	11296000	60628000	213059000	47654000	60628000	271826000	1592000	80025000	90559000	7327000	44216000
0.808158062	0.4111360139	1.135764555	0.884456184	0	1.436031691	44380000	54915000	107886000	39075000	54915000	62089000	0	5200000	17292000	3552000	14515000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.002451233	0.009845405	0.008091645	0.758650411	3.710120241	6.314632304	70042.89	28574548.46	7114272.22	8656199.58	28574548.46	37664974.62	21429583.28	5775980.8	11496674.93	1613150.75	2076102.78
1.947343677	0.626531538	1.974261201	0.11726115	0.002526493	8.934755332	4142000	2127000	6611000	2098000	2127000	18139000	36000	14249000	14242000	0	1594000
-0.170943196	-0.157465768	-0.252461016	0.265750161	0.14317031	0.204848911	-2898000	16953000	18404000	11479000	16953000	63793000	4637000	32388000	767000	399000	5692000
-0.028526604	-0.010386191	-0.051906005	0.307095266	1.915886545	8.040783558	-1491000	52267000	143556000	28725000	52267000	170198000	13712000	7157000	37904000	12174000	6228000
0.106269495	0.05949546	0.288004099	0.477272874	0.789147264	4.87377262	7870000	74057000	132279000	27326000	74057000	155167000	53314000	67559000	112451000	7668000	24646000
0.078281212	0.023547276	0.109768309	0.694544211	0.849455955	9.863919129	3179000	40610000	135005000	28961000	40610000	58470000	5699000	6709000	15961000	9409000	2572000
0.12128287	0.039427955	0.13844859	0.573219694	1.560711524	-10.28015564	987000	8138000	25033000	7129000	8138000	14197000	2018000	1293000	6336000	4232000	-1028000
-3.151268763	-0.733357679	-3.151268763	0.132319398	0.003319049	12.36824863	-2004125	635974	2732807	635974	635974	4806355	110816	33387880	728663	0	58914
0.078693361	0.003020347	0.09636129	0.527023125	0.937522282	4.239230376	1867000	23725000	618140992	19375000	23725000	45017000	10519000	11220000	20116000	4781000	5873000
-0.065628383	-0.017696134	-0.071048598	0.832432058	0.827547014	76.38955224	-1576000	24014000	89059000	22182000	24014000	28848000	8009000	9678000	49725000	1456000	670000
0.09719207	0.037402967	0.241657924	0.693721659	5.960079238	57126000	587764000	1527312000	236392000	587764000	847262000	329969000	170162000	721031000	88312000	135794000	0
2.072483221	0.91604865	2.072483221	0.028233065	0	302.035503	3088000	1490000	3371000	1490000	1490000	52775000	0	34489000	51044000	0	169000
0.965626989	0.029230414	1.407235622	0.023067661	0.040891897	2.27200909	1517000	1571000	51898000	1078000	1571000	68104000	1027000	25115000	41989000	0	18481000
0.210572823	0.091096591	0.399968774	0.64437853	0.686465997	38.71931565	20494000	97325000	224970000	51239000	97325000	151037000	36763000	53554000	146403000	9752000	4033000
0	0	0	1.554575312	4.997667569	0	0	737447000	0	250627000	737447000	474372000	505674000	101182000	41620000	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.133376204	0.122234386	0.216936614	0.654095562	1.25741237	8.024665416	7942669	59550870	64979007	36612856	59550870	91043073	48438746	38522562	69119566	3211494	9013592
0.581542271	0.20449169	1.314672698	0.142768664	0.076466874	3.1803247	14839092	25516790	72565746	11287290	25516790	178728226	15972840	20891190	131716434	8207962	43968890
0.158177286	0.059314113	0.362690504	1.291646029	0.762846413	6.444897959	4950000	31294000	83454000	13648000	31294000	24228000	16048000	21037000	0	9474000	1470000
0.127610984	0.102133161	0.54547619	0.583429472	1.091314954	85.70347003	458200000	3590600000	4486300000	840000000	3590600000	6154300000	2371100000	2172700000	4834200000	599400000	63400000
-0.067652217	-0.0303046171	-0.110655738	0.48939301	0.441352484	7.983518589	-810000	11973000	26692000	7320000	11973000	24465000	5900000	13368000	17930000	2899000	2609000
0.157179209	0.232977584	1.632954456	0.612704932	1.421230479	54.63056501	106128976	675210016	455532992	64992000	675210016	1102014984	509558016	358532992	585916992	58232000	11791000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.20671099	0.148122118	0.684313458	0.521884918	2.1216155	10.66502641	13564887	65622476	91579078	19822622	65622476	125741277	38010893	17916014	118932432	6204109	11733355
0.157086406	0.139573606	0.237160957	0.743690732	0.931666559	67.9281768	385600000	2454700000	2762700000	1625900000	2454700000	3300700000	1438400000	1543900000	838900000	390600000	18100000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0.085518015	0.05696242	0.010609374	0	309998.16	0	309998.16	309998.16	3624945.7	230001.84	4037782.07	37837.29	0	3566401.62
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.168499229	0.091092404	0.61765375	0.462695568	3.127860054	18.76745821	81450000	483385000	894147000	131870000	483385000	1044715000	314694000	100610000	697262000	157089000	45523000
0.974617046	0.358256632	1.411978092	0.263138856	0.001774325	2.48870226	19851000	20368000	55410000	14059000	20368000	77404000	37000	20853000	7954000	4492000	5001000
0.343855701	0.253014761	1.436497905	0.539860964	0.864979943	7.942469563	101151000	294167000	399783000	70415000	294167000	544894000	157845000	182484000	163487000	47878000	26612000
0.355035467	0.150932524	0.508246556	0.495844255	0.413676926	2.137920763	7858000	22133000	52063000	15461000	22133000	44637000	4543000	10982000	6270000	8084000	6714000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.364365805	0.336268619	0.365222076	1.347185066	0.181679722	0.307607007	2236685	6138570	6651483	6124178	6138570	4556590	2764223	15214813	375942	65120	1433849
-1.799242424	-0.734157651	-1.799242424	0.378766141	0	0	-475000	264000	647000	264000	264000	697000	0	3941000	0	0	251000
0.19606984	0.129214392	0.46020006	0.721125514	0.688318235	4.874676072	456688493	2329213375	3534346953	9923969478	2329213375	3229969443	951370700.2	1382166929	3170850358	118653745	674814912
0.098924153	0.471055328	0.412239408	0.623616236	-4.45980032	74.30523256	3247968916	32832921229	6895090074	7878841399	32832921229	52649240551	14989403038	-3.361E+09	40833627693	4311197457	607559166
0.66548829	0.300139507	2.083948339	0.370679771	0.588584906	31.95320197	4518000	6789000	15053000	2168000	6789000	18315000	6239000	10600000	25752000	194000	812000
0.225055845	0.176093606	0.770063694	0.558091214	2.082456639	22.78994845	5434522026	24147437818	3.0862E+10	7057237039	24147437818	43267905304	10973928678	5269703326	51006892418	1989811208	2325442014
0.428038508	0.0770397	0.733931703	0.349666533	0.076944228	77.05164835	711400000	1662000000	9234200000	969300000	1662000000	4753100000	167900000	2182100000	6372300000	639400000	91000000
0.202270547	0.061536216	0.740632319	0.657485282	2.834985836	90.30357143	1265000000	6254000000	2.0557E+10	1708000000	6254000000	9512000000	4003000000	1412000000	10035000000	79000000	112000000
1.065296261	0.041081278	1.147622449	0.172530305	0.134916659	1.068966508	26791712	25149541	652163547	23345406	25149541	145768832	10036304	74388916	49714455	1013496	47455136
0.219249944	0.025556462	0.434392421	0.63473018	1.789059927	189.3902833	394831000	1800826000	1.5449E+10	908927000	1800826000	2837152000	972202000	543415000	2877608000	525546000	17969000
0.605793601	0.052029755	0.653328754	0.275954373	0.101568818												

-2.017469815	-0.87569657	-2.017469815	0.151388404	0.108757	0	-490919	243334	560604	243334	243334	1607349	243334	2237410	0	0	16726
0.271119329	0.060287115	0.435325928	0.46027893	1.059758106	50.16182309	47856000	175775000	790484000	109472000	175775000	381888000	63701000	60109000	232256000	83613000	6297000
0.144586895	0.102750127	0.47337738	0.489369118	0.769167759	78.99061033	121800000	842400000	1185400000	257300000	842400000	1721400000	469500000	610400000	1550600000	131900000	21300000
0.164927462	0.140961497	0.474377745	0.474746254	0.644419726	13.60072595	107355865	650927766.7	761597084	226308814	650927766.7	1371106693	287939032.5	446819085	1116964877	124585818	91285619.6
0.218171629	0.052623236	0.255585248	0.597394898	0.089515861	3.430635909	281852000	1291882000	5356037000	1102771000	1291882000	2162526000	37131000	414798000	1351227000	49385000	408266000
0.43058441	0.084109676	0.538583211	0.255056905	0	5.53160982	4767000	11071000	56676000	8851000	11071000	43406000	0	8633000	42107000	8817000	9206000
0.05274938	0.031939052	0.11008711	0.538820078	0.192342229	12.68073293	872000	16531000	27302000	7921000	16531000	30680000	13709000	71274000	21525000	1313000	1801000
0.047894522	0.152501719	0.399119306	0.414058257	0.810302191	2.210511188	245990000	5136078000	1613031000	616332000	5136078000	12404240000	3013573000	3719073000	2791701000	0	1262921000
0.778172681	0.013148443	0.778172681	0.023494859	0	0	34375000	44174000	2614378000	44174000	44174000	1880156000	0	1619458000	0	0	576260000
-0.597013633	-0.220702644	-3.885657678	0.177359237	0.087446336	0.2164612	-2696627	4516860	12218372	693995	4516860	25467295	2952292	33761186	1634994	0	7553289
-4.834833119	-0.040096916	-4.834833119	0.00654899	0	1.879524319	-304638	63009	7597542	63009	63009	9621178	0	10053337	5572175	0	2964673
0.208605131	0.22872212	0.628571519	0.518749701	0.618519581	18.36186613	199007000	953989000	870082000	316602000	953989000	1839016000	485108000	784305000	1830083000	25659000	101065000
0.178202742	0.107892108	0.414730209	0.625042972	1.231075076	72.8844697	4212000	23636000	39039000	10156000	23636000	37815000	15791000	12827000	38478000	5000	528000
0.043811242	0.024433371	0.13830795	1.010875254	0.915823254	42.0840896	26572000	606511000	1087529000	192122000	606511000	599986000	408100000	445610000	257568000	108774000	8705000
0.153013483	0.378607117	0.96660961	0.431405213	3.215120199	14.86989243	1183871424	7737039915	3126912752	1224766867	7737039915	17934507241	3208413988	997914165	9316328153	1232917697	709436595
0.109280842	0.070586694	0.409760735	0.57418569	2.86521889	20.9359589	12930000	118319000	183179000	31555000	118319000	206064000	49872000	17406000	47107000	14026000	2920000
0.253392749	0.103834661	0.586704186	0.555452423	1.985999588	39.16894977	500400000	1974800000	4819200000	852900000	1974800000	3555300000	964600000	485700000	2848100000	583100000	87600000
0.24752569	0.656575807	0.554588859	0.592192714	6.262266355	75.93379791	5227000000	21117000000	7961000000	9425000000	21117000000	35659000000	10721000000	1712000000	40935000000	2651000000	574000000
0.110214572	0.077611294	0.270778267	0.689986921	1.693232923	138.5348646	1290800000	11711700000	1.6632E+10	4767000000	11711700000	16973800000	6363000000	3757900000	16457100000	430300000	121900000
0.168487585	0.06191336	0.240604083	0.452964034	3.306859505	243.1502862	11158531	66227615.67	180228161	46377147.5	66227615.67	146209435.5	36372147.99	10999000.1	150206344.9	24072357.1	716753.02
0.334079531	0.464779162	1.385550304	0.461753872	0.808881686	38.515625	820800000	2456900000	1766000000	592400000	2456900000	5320800000	12477700000	1542500000	3326400000	124600000	89600000
0.448612475	0.429290168	2.022277966	0.536902403	2.023493576	33.56572172	1206851000	2690186000	2811271000	596778000	2690186000	5010568000	1429580000	706491000	5162757000	51745000	155352000
0.072763916	0.028876557	0.172202532	0.703502295	1.324105023	2.657077067	34010000	467402000	1177772000	197500000	467402000	664393000	226990000	171429000	54146000	37013000	34308000

**Modified Data Worksheet Fail5 -
Most Recent Year less 4; Year T-4**

	Failure ranking	X1	X2	X3	X4	Z-score	Working cap	Ret earnings	EBIT	Total assets	MV Equity	BV Debt/ total liabs	CA	CL	Share price
Aerosonde	1	0.108115823	-0.121111396	-0.111607298	53.31915996	55.54953357	696944	-780717	-719451	6446272	14195000	266227	963171	266227	0.85
Alamain	3	0.135925341	-0.545562348	0.043982624	0.24695593	-0.331996058	2482319	-9,963,262.00	803,227.00	18,262,371.00	2,776,000.00	11,240,872.00	8,357,554.00	5,875,235.00	0.04
Australian Goldfields	3	-1.196779964	-49.38998211	0.110912343	20.52831985	-146.5621515	-669000	-27609000	62000	559000	43130000	2101000	346000	1015000	0.45
Australian Kaolin	3	0.393790427	-0.211513583	-0.005846895	12.54549431	15.02720881	6088000	-3,270,000.00	-90,393.00	15,460,000.00	28,679,000.00	2,286,000.00	6,885,000.00	797,000.00	1.19
Australian Plantation Timber	1	0.018892448	0.111917635	0.157797925	0.833389704	2.424247191	5916000	35046000	49413000	313141000	103340323.3	124000000	89925000	84009000	0.78
Australian Resources	3	0.182316352	0.224752246	0.25339454	0	3.631498901	33004000	40686000	45871000	181026000	0	58229000	75743000	42739000	0.00
Australian Topmaking Services	1	0.002522807	-0.02591826	-0.034728263	1.482493621	1.255300464	98443	-1011362	-1355139	39021215	15643745.6	10552319	5229384	5130941	0.14
Barrack Mines(2)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carlovers Carwash	1	-0.241999379	-0.417546994	-0.12863135	0.166136879	-3.638678073	-6231000	-10751000	-3312000	25748000	2586751.2	15570000	2797000	9028000	0.06
Centaur Mining	3	0.011694762	-1.690272209	-0.027438651	254.1393923	261.2284044	956000	-138172992	-2243000	81746000	5570227200	21918000	20006000	19050000	17.4
Central Norseman Gold	1	0.287422008	0.208900249	0.005536147	1.622065342	4.306874703	25751000	18716000	496000	89593000	79040000	48728000	45684000	19933000	0.38
Chameleon Mining(2)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Child Care Centres(3)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
China Convergent(4)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifford Corporation	3	-7.915254237	-90.74576271	-2.152542373	0	-362.220339	-467000	-5354000	-127000	59000	0	470000	3000	470000	0
Coplex	2	-0.023983119	-0.365099243	-0.052992743	3.292781619	1.753756669	-1398000	-21282000	-3089000	58291000	40484750	12295000	4545000	5943000	0.25
Cudgen Rz	3	0.293104146	0.321150163	0.126999434	0	3.823148922	43465000	47624000	18833000	148292000	0	35122000	67293000	23828000	0
Denehurst	3	0.000186024	-0.022773616	-0.110455258	0	-0.815281003	26000	-3183000	-15438000	139767000	0	62066000	32415000	32389000	0
Ectec	3	0.131808759	0.036694253	0.118178999	0.335926698	2.131174627	8075000	2248000	7240000	61263000	15306500	45565000	39128000	31053000	1.15
Farnell & Thomas	3	0.001835169	-0.027694361	-0.012345679	1.496275733	1.409881645	11000	-166000	-74000	5994000	2398530	1603000	771000	760000	0.51
Federation Group	3	-0.209435418	-9.053847944	-0.425379624	1.784856121	-31.87389278	-657769	-28435212	-1335980	3140677	1577386.23	883761	225992	883761	0.21
Golden West Refining	3	0.309125805	-0.133110451	0.052501238	4.360333925	6.525084153	4993000	-2150000	848000	16152000	24548680	5630000	7498000	2505000	0.68
Greyhound Pioneer	2	-0.839764832	-0.321503652	0.065954035	0.074057143	-6.035988085	-23568000	-9023000	1851000	28065000	2268000	30625000	6023000	29591000	0.4
Henry Walker Eltin	3	0.067627788	0.096707321	0.066226836	0.395673378	1.619405539	53631000	76692000	52520000	793032000	212718360.7	537611000	348639000	295008000	1.29
Huadu	2	0.005687741	0.053818264	0.073011557	52.80607815	56.14977884	251000	2375000	3222000	44130000	36489000	691000	942000	691000	1
Investment Austasia	1	-0.008335179	4.02666E-05	0.028045662	23.35624787	24.65797961	-414000	2000	1393000	49669000	41083640	1759000	1345000	1759000	0.82
Ion	2	-0.118958021	-0.191569014	0.114473453	1.234956895	0.661086747	-6101000	-9825000	5871000	51287000	40532520.24	32821000	20747000	26848000	0.36
Jennings	2	-0.416120259	0.131974579	0.110025855	0.491203704	-1.044374137	-247696000	78558000	65493000	595251000	342155799.2	696566000	120575000	368271000	1.65
Kinetic Power(1)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laverton Gold	2	-0.205327091	-0.255626313	-0.00896778	2.845990138	0.747738665	-8009693	-9971837	-349828	39009431	48635529.6	17089142	3938956	11948649	0.42
Macraes Mining	1	0.355642964	0.053814668	0.066172739	0	2.953134469	71924186	10883320	13382580	202237056	0	50466022	97189037	25264851	0
Milnes Holdings	1	0	0	0	0	0	0	0	0	5971000	0	0	0	0	0
MIM Holdings	2	0.035485855	0.031257688	0.033625461	0.313661267	0.8899947	230800000	203300000	218700000	6504000000	1294981908	4128600000	1440600000	1209800000	0.78
National Forge	3	0.075579203	-0.027357661	0.016674347	0.080810848	0.603516605	1804000	-653000	398000	23869000	994458.3	12306000	9715000	7911000	0.3
Newmont Yandal	1	0.004825259	0.058710822	0.078847895	0.696266126	1.483988266	5281000	64256000	86295000	1094449000	470226113.3	675354000	102351000	97070000	1.54
Non-ferral Recyclers(3)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otter Gold	1	0.129107448	0.310436805	0.03251458	2.151897269	4.336958955	12785833	30743332	3220000	99032497	71593620	33269999	21133333	8347500	1.05
Pasminco	3	0.084096051	-0.014397367	0.028409091	0.420982309	1.137675193	327100000	-56000000	110500000	3889600000	1001390619	2378700000	896800000	569700000	0.89
Phoenix Technology(3)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Planar Semiconductor(4)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recruiters Australia(4)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RGC	2	0.132633096	0.148287967	0.043637169	0	1.646733658	147842000	165292000	48641000	1114669000	0	540823000	251520000	103678000	0
Ross Mining	1	-0.06268647	0.263527724	0.254006554	7.244437153	9.761460191	-3845000	16164000	15580000	61337000	150140960	20725000	8863000	12708000	1.09
Sons of Gwalia	2	0.037905326	0.081655202	0.164012799	1.826299173	3.534635039	17323000	37317000	74955000	457007016	453333112.2	248225000	85450000	68127000	3.98
Stanilite(4)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stockford(4)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Starch International	3	-1.209313206	-6.512025	-0.181690046	0.52325504	-29.83383545	-3303210	-17787440	-496282	2731476	2861872.8	5469365	2139526	5442736	0.06
Target Resources	2	0.033492823	-15.32057416	-3.358851675	0	-72.29684211	7000	-3202000	-702000	209000	0	168000	175000	168000	0
Air New Zealand	0	0.048360939	-0.274581302	-0.008349839	0.639937289	0.037935949	162776050	-924201658.9	-28104372	3365857957	1666388076	2603986522	1240776741	1078000691	0.57
Alcoa	0	0.063092929	0.219538	0.090918709	1.700226336	3.525794873	3503721112	12191539365	5.049E+09	55532706620	54702934277	32173913043	13301997650	9798276537	64.54
Amadeus Energy	0	-0.027360613	-0.103544719	0.046513042	1.810812947	1.69687983	-450000	-1703000	765000	16447000	10120633.56	5589000	1907000	2357000	0.12
BHP	0	-0.010515036	0.249648383	0.106121492	2.097121063	3.659988636	-555949009	13199362606	5.611E+09	52871813031	62041069131	29583923513	9785764873	10341713881	10.3
Bluescope Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brambles	0	-0.0019393	0.126345389	0.096577136	2.266546391	3.428036224	-20000000	1303000000	996000000	10313000000	15954220048	7039000000	2222000000	2242000000	9.44
Cabcharge	0	0.412870082	0.22966056	0.153770636	8.811437013	13.7424687	56892172	31646488	21189100	137796790	302176354.6	34293652	89712779	32820607	2.72
Caltex	0	0.114302948	0.098291224	0.073339565	0.200477491	1.773599972	314003000	270017000	201472000	2747112000	386100000	1925902000	1046543000	732540000	1.43

Capral Aluminium	0	0.195093036	0.186109334	-0.03922373	1.674307284	3.380965923	56115000	53531000	-11282000	287632000	172877250	103253000	152652000	96537000	2.55
Coffey International	0	0.180930805	0.059182189	0.140739498	0.908580062	3.279618508	6469000	2116000	5032000	35754000	19606249.16	21579000	27122000	20653000	1.73
CSR	0	0.065830682	0.201529425	0.116518042	1.601513187	3.553425288	523400000	1602300000	926400000	7950700000	6159900170	3846300000	1742600000	1219200000	6.59
Goldstream Mining	0	0.614828404	-2.550576173	-0.274965997	368.6530925	380.9563717	4883855	-20260359	-2184177	7943444	70284449.4	190652	50477973	164118	0.6
Hill End Gold	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hills Industries	0	0.188763074	0.206371308	0.12697954	2.241140909	5.117556693	64664000	70696000	43499000	342567000	419118002.5	187011000	187616000	122952000	3.33
Illuka Resources	0	0.151178387	0.082646739	0.083604777	1.196085354	3.078872314	236700000	129400000	130900000	1565700000	967035009.1	808500000	457500000	220800000	4.45
James Hardie	0	0.125889436	-0.17635468	0.08166393	2.821880627	3.762674713	216328066	-303047404.1	140331076	1718397291	2882925825	1021632807	447893152.8	231565086.5	6.33
Leighton Holdings	0	0.043623321	0.179014865	0.097081079	1.83378299	3.447614436	101109000	414916000	225012000	2317774000	2793269596	1523228000	1419375000	1318266000	10.39
John Shearer	0	0.323497241	0.270435818	0.027344984	1.458978356	4.719448239	13309000	11126000	1125000	41141000	17949810.72	12303000	23950000	10641000	1.52
Kimberley Diamond	0	-0.269912261	-0.97058165	-0.118338512	2.763414589	-2.828370096	-10615707	-38173184	-4654279	39330214	54473577.95	19712416	1846881	12462588	0.55
Macquarie Infrastructure	0	0.012283778	0.059665862	-0.009490546	1.642575579	1.936020185	140669000	683270000	-108682000	11451607000	7833687680	4769149000	552100000	411431000	4.16
Macquarie Airports	0	0.713019624	0	0	0	0	337900000	0	0	473900000	890000000	0	337900000	0	1.78
Mt Gibson Iron	0	0.036815724	-0.018597471	-0.018409317	5.658029775	5.998104046	910834	-460108	-455453	24740353	22473371.76	3971943	4806231	3895397	0.19
Midas Resources	0	0.386402015	-0.041962987	-0.033499899	0	0	3810835	-413854	-330388	9862358	0	28855	3839690	28855	0
Newcrest Mining	0	-0.052312191	0.002362664	0.030592541	2.597439379	2.597427533	-71981000	3251000	42095000	1375989000	2172568427	836427000	161954000	233935000	7.58
National Hire Group	0	-0.10373284	0.024140059	0.033703532	0.20396298	-0.161141972	-4035000	939000	1311000	38898000	5059709.64	24807000	6342000	10377000	0.18
Nylex	0	0.174877909	-0.49433019	-0.104193171	0.054869159	-1.106882833	136360000	-385451000	-81244000	779744000	39090818.88	712437000	354321000	217961000	0.16
Newmont Mining	0	0.06390861	-0.03480489	0.006640688	0	0	1172346259	-638464551.5	121817470	18344104975	0	8516842930	2848413631	1676067372	0
Programmed Maintenance Services	0	0.371162841	0.294033504	0.113091483	1.340752966	5.561142839	68242000	54061000	20793000	183860000	150285000	112090000	94455000	26213000	2.33
Orica	0	0.113544514	0.217906811	0.121835255	1.419976555	3.764936514	382100000	733300000	410000000	3365200000	2656918131	1871100000	1270300000	888200000	9.52
Rio Tinto	0	-0.063676662	0.224093872	0.153533246	2.253840381	3.711102934	-2442000000	8594000000	5.888E+09	38350000000	51171192000	22704000000	9112000000	11554000000	37.21
Qantas	0	-0.123345607	0.083714488	0.042286255	0.682001354	0.464027105	-1825700000	1239100000	625900000	14801500000	7193750282	10548000000	3755700000	5581400000	4.6
Steamships Trading	0	0.033009528	0.427461973	0.026024456	0.573950902	2.387601323	5298214.84	68610050.56	4177071.5	160505623.8	40310708.1	70233722.01	58424311.22	53126096.38	1.3
Santos	0	-0.038683225	0.170479529	0.134886208	1.545387166	2.831093152	-195300000	860700000	681000000	5048700000	3588543539	2322100000	522400000	717700000	6.2
Woodside Petroleum	0	-0.029103827	0.28847337	0.205670738	2.507003322	4.763962926	-177966000	1763976000	1.258E+09	6114866000	8926666671	3560692000	836629000	1014595000	13.39
Transfield	0	0.070022887	0.001795561	0.06901276	1.218795381	2.208704562	35215000	903000	34707000	502907000	387750000	318142000	212221000	177006000	2.82

No. shares	CFFO/TD	CFFO/TCI	CFFO/CL	TL/TA	LC/SC	(FA+I)/NC	CFFO	TD	TCI	CL	TL	TA	LC	SC	FA	Inv	NC
16700000	-2.792057154	-0.164227444	-2.792057154	0.041299374	0	5.161969068	-743321	266227	4526168	266227	266227	6446272	0	3332000	4960771	0	961023
69,400,000.00	-0.073867045	-0.076308013	-0.141327113	0.615520953	0.38643259	5.277204319	-830,330.00	11,240,872	10881295	5,875,235	11,240,872	18,262,371	5,365,637	13,885,053	9173264	0	1,738,281
95844444	0.079009995	0.053896104	0.163546798	3.758497317	0.068738318	6.342857143	166000	2101000	3080000	1015000	2101000	559000	1471000	21400000	18000	204000	35000
24,100,000	-2.454943132	-0.60467622	-7.04140527	0.147865459	0	0.272992275	-5612000	2286000	9281000	797000	2286000	15460000	0	9234000	1873000	0	6861000
132487594	0.113258065	0.072888068	0.167172565	0.39598775	0.203397371	5.214646877	14044000	124000000	192679000	84009000	124000000	313141000	29719000	146113000	189733000	2093000	36786000
224059000	1.041508527	0.279140201	1.418985002	0.321660977	0.431290726	1.81982217	60646000	58229000	217260000	42739000	58229000	181026000	19327000	44812000	72071000	4680000	42175000
111741040	-0.121004302	-0.060977868	-0.248858055	0.270425178	0.393869969	13.55489124	-1276876	10552319	20939991	5130941	10552319	39021215	8802288	22348208	34452558	78297	2547483
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43112520	-0.017469493	-0.012296008	-0.030128489	0.604707162	1.061606977	375.5079365	-272000	15570000	22121000	9028000	15570000	25748000	11442000	10778000	22149000	1508000	63000
320128000	0.050232685	0.008773188	0.057795276	0.268123211	0.039406482	1.332300497	1101000	21918000	125496000	19050000	21918000	81746000	2523000	64025000	21017000	1772000	17105000
208000000	0.49704482	0.366071159	1.215070486	0.543881776	0	1.972623598	24220000	48728000	66162000	19933000	48728000	89593000	0	20800000	57151000	6330000	32181000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35454000	-0.144680851	-0.453333333	-0.144680851	7.966101695	0	28	-68000	470000	150000	470000	470000	59000	0	3545000	56000	0	2000
161939000	-0.215209435	-0.338493028	-0.445229682	0.210924499	0.071017129	6.352040816	-2646000	12295000	7817000	5943000	12295000	58291000	1874000	26388000	1063000	182000	196000
31250000	0.460793804	0.234126582	0.67920094	0.236843525	0	1.135931267	16184000	35122000	69125000	23828000	35122000	148292000	0	6250000	41148000	10680000	45626000
65410000	0.136934876	0.0558047	0.262403903	0.444067627	0.661030423	15.31613569	8499000	62066000	152299000	32389000	62066000	139767000	43238000	65410000	108202000	10544000	7753000
13310000	0.09897948	0.034508088	0.145235566	0.743760508	1.025544703	3.921636475	4510000	45565000	130694000	31053000	45565000	61263000	6825000	6655000	14717000	4550000	4913000
4703000	0.114784779	0.063100137	0.242105263	0.267434101	0.819727891	-192.0740741	184000	1603000	2916000	760000	1603000	5994000	964000	1176000	4968000	218000	-27000
7511363	-0.433646653	-0.579714529	-0.433646653	0.281391878	0.002915438	-3.514402644	-383240	883761	661084	883761	883761	3140677	89481	30692128	312578	0	-88942
36101000	-0.299111901	-0.020081566	-0.672255489	0.348563645	0.559418283	3.570939521	-1684000	5630000	83858000	2505000	5630000	16152000	4039000	7220000	8239000	1149000	2629000
5670000	-0.015477551	-0.005591535	-0.016018384	1.091216818	16.49294533	-100.3538175	-474000	30625000	84771000	29591000	30625000	28065000	18703000	1134000	52912000	978000	-537000
164897954	0.201521174	0.083018966	0.367244278	0.677918419	1.547112355	8.479317883	108340000	537611000	1305003000	295008000	537611000	793032000	263170000	170104000	715671000	83386000	94236000
36489000	6.549927641	0.923296614	6.549927641	0.015658282	0	554.1666667	4526000	691000	4902000	691000	691000	44130000	0	34489000	43225000	0	78000
50102000	-1.192723138	-0.03426369	-1.192723138	0.035414444	0.039998403	47.42296369	-2098000	1759000	61231000	1759000	1759000	49669000	1002000	25051000	48324000	0	1019000
112590334	0.326102191	0.152035569	0.398651669	0.639947745	0.184440281	19.34852261	10703000	32821000	70398000	26848000	32821000	51287000	5218000	28291000	48559000	5791000	2809000
207367151	0	0	0	1.17020551	4.504097244	0	0	696566000	368271000	696566000	595251000	429826000	95430000	45539000	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115798880	-0.046634231	-0.042725843	-0.066696996	0.438077192	0.210480979	21.18608706	-796939	17089142	18652388	11948649	17089142	39009431	5062173	24050501	34530144	0	1629850
126404000	0.312849267	0.092425751	0.624909998	0.249538947	1.417981728	1.311124358	15788258	50466022	170820987	25264851	50466022	202237056	29646297	20907390	109402174	7202343	88934750
26343327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1660233216	0.112483658	0.105643901	0.383865128	0.634778598	3.156005301	52.4140527	464400032	4128600000	4395900064	1209800000	4128600000	6504000000	2619800000	830100000	3604400000	573000000	79700000
3314861	0.032504469	0.016442636	0.050562508	0.515564121	0.897269573	12.32731649	400000	12306000	24327000	7911000	12306000	23869000	5948000	6629000	17719000	2769000	1662000
305341632	0.126857915	0.067697637	0.882600185	0.617072152	8.549977075	18.44725682	85674000	675354000	1265539000	97070000	675354000	1094449000	522130000	61068000	512892008	55634000	30819000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68184400	0.495917208	0.219160929	1.976539683	0.335950319	0.732164955	10.18558901	16499165	33269999	75283332	8347500	33269999	99032497	13333333	18210832	81809999	3120834	8338333
1125157999	0.119687224	0.083553443	0.499736704	0.611553887	0.913854524	50.81920904	284700000	2378700000	3407400000	569700000	2378700000	3889600000	1410900000	1543900000	4060600000	436900000	88500000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
199096000	0.141269879	0.092453499	0.736916221	0.485187082	3.918397685	12.49463413	76402000	540823000	826383000	103678000	540823000	1114669000	392741000	100230000	753776000	118262000	69793000
137744000	0.925500603	0.430434002	1.50936418	0.337887409	0.175890695	3.778310105	19181000	20725000	44562000	12708000	20725000	61337000	3051000	17346000	5610000	3065000	2296000
113902792	0.235842514	0.148214366	0.859307	0.543153587	0.821578786	27.16032372	58542008	248225000	394982008	68127000	248225000	457007016	140872000	171464992	487032008	43898000	19548000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47697880	-0.354452116	-0.313136691	-0.3561863	2.002347815	0.2359168	1.122045462	-1938628	5469365	6190996	5442736	5469365	2731476	3589430	15214813	351952	0	313670
14414000	-3.160714286	-3.992481203	-3.160714286	0.803827751	0.004856053	0.017857143	-531000	168000	133000	168000	168000	209000	14000	2883000	3000	0	168000
2923487852	0.018662815	0.009705593	0.045081343	0.773647181	0.878546681	6.197727073	48597719	2603986522	5007186798	1078000691	2603986522	3365857957	1201709003	1367837394	3098477622	133395542	5.21E+08
847581876	0.146761626	0.272306302	0.481910853	0.579368718	-3.66647951	48.95898437	4721895809	3.2174E+10	1.734E+10	9798276537	3.2174E+10	5.5533E+10	1.2789E+10	-3.488E+09	4.4136E+10	4.957E+09	1E+09
84338613	0.387189121	0.247512296	0.918116249	0.339818812	0.494811321	57.76626506	2164000	5589000	8743000	2357000	5589000	16447000	5245000	10600000	23793000	180000	415000
6023404770	0.2228739	0.174901371	0.637562061	0.559540553	1.671092952	20.99533022	6593484419	2.9584E+10	3.7698E+10	1.0342E+10	2.9584E+10	5.2872E+10	1.4483E+10	8666784703	5.3051E+10	2.672E+09	2.65E+09
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1690065683	0.178150305	0.078199052	0.559322034	0.682536604	3.016783217	73.53472222	1254000000	7039000000	1.6036E+10	2242000000	7039000000	1.0313E+10	4314000000	1430000000	1.0498E+10	91000000	1.44E+08
111094248	0.571979386	0.032185896	0.597650799	0.248871196	0.172886497	1.135155822	19615262	34293652	609436559	32820607	34293652	137796790	12379637	71605575	43105891	1414632	39219746
270000000	0.046167458	0.005631685	0.121377672	0.701064245	2.3273189	0	88914000	1925902000	1.5788E+10	732540000	1925902000	2747112000	1264700000	543415000	2812577000	492736000	0

67795000	-0.237600845	-0.028940185	-0.254130541	0.358976053	0.323187128	24.04167776	-24533000	103253000	847714000	96537000	103253000	287632000	30048000	92974000	116959000	63594000	7510000
11333092	0.258909125	0.047162405	0.2705176	0.603540863	0.251430467	2.657362849	5587000	21579000	118463000	20653000	21579000	35754000	3032000	12059000	7713000	3331000	4156000
934734472	0.310636196	0.159031013	0.979986877	0.483768725	0.885622137	47.06321839	1194800000	3846300000	7513000000	1219200000	3846300000	7950700000	1894700000	2139400000	6668400000	7017000000	1.57E+08
117140749	-3.716845352	-0.161463485	-4.31777136	0.024001176	0.00022543	0.076937223	-708624	190652	4388757	164118	190652	7943444	6315	28013151	381145	0	4953974
0	0	-0.062980494	0	0	0	0	-107481	0	1706576	0	0	0	0	0	0	0	0
125861262	0.16486196	0.046411819	0.250756393	0.545910727	1.843284333	42.75446154	30831000	187011000	664292000	122952000	187011000	342567000	73230000	39728000	202596000	75308000	6500000
217311238	0.162028448	0.133387639	0.593297101	0.516382449	0.728464419	54.88652482	131000000	808500000	982100000	220800000	808500000	1565700000	389000000	534000000	1346400000	201400000	28200000
455438519	0.142331062	0.176122123	0.62794476	0.594526546	1.606134372	20.63987138	145410083	1021632807	825620768	231565087	1021632807	1718397291	620579383	386380737	1084462002	123024831	58502634
268842117	0.431489573	0.132347738	0.498576918	0.65719436	0.16111029	2.371926855	657257000	1523228000	4966137000	1318266000	1523228000	2317774000	64346000	399391000	1341958000	53596000	5.88E+08
11809086	0.118914086	0.026438007	0.137487078	0.299044749	0	9.497672687	1463000	12303000	55337000	10641000	12303000	41141000	0	8633000	41765000	9247000	5371000
99042869	-0.119462221	-0.11359534	-0.18895666	0.501202867	0.304808855	17.99419425	-2354889	19712416	20730507	12462588	19712416	39330214	17304298	56770982	27224928	0	1512984
1883098000	0.01663714	0.020666872	0.192851292	0.416461113	0.800798929	6.36693837	79345000	4769149000	3839236000	411431000	4769149000	1.1452E+10	2975748000	3715974000	2659657000	36000	4.18E+08
500000000	0	0	0	0	0	0	0	0	0	0	0	473900000	0	473900000	0	0	3.38E+08
118280904	-0.565112087	-0.38571748	-0.57621675	0.160545122	0.004215744	0.144236409	-2244593	3971943	5819267	3895397	3971943	24740353	89494	21228518	258057	232817	3403260
61030986	-10.9165136	-11.25991063	-10.9165136	0.002925771	0	1.452898625	-314996	28855	27975	28855	28855	9862358	0	10047357	5564208	0	3829729
286618526	0.107987906	0.113552391	0.386107252	0.607873319	1.042466365	100.7711103	90324000	836427000	795439000	233935000	836427000	1375989000	550760000	528324000	1413801000	33776000	14365000
28109498	0.164913129	0.140270873	0.394237255	0.637744871	1.359865908	295.3650794	4091000	24807000	29165000	10377000	24807000	38898000	17443000	12827000	37202000	14000	126000
244317618	-0.016306003	-0.010531937	-0.053298526	0.913680644	1.177369765	22.07525061	-11617000	712437000	1103026000	217961000	712437000	779744000	488632000	415020000	363466000	118812000	21847000
3477000000	0	0	0	0.464282283	0.591360856	8.338382395	0	8516842930	0	1676067372	8516842930	1.8344E+10	3938699569	6660399530	1.0551E+10	876811594	1.37E+09
64500000	0.04395575	0.030229034	0.187960172	0.609648646	4.5728219	19.42509603	4927000	112090000	162989000	26213000	112090000	183860000	55793000	12201000	42824000	2689000	2343000
279088039	0.183154294	0.073480853	0.385836523	0.556014501	1.635193983	21.67896175	342700000	1871100000	4663800000	888200000	1871100000	3365200000	826100000	505200000	2625600000	548200000	1.46E+08
1375200000	0.21538055	0.566496756	0.42323005	0.59202086	7.270207852	32.91936699	4890000000	2.2704E+10	8632000000	1.1554E+10	2.2704E+10	3.835E+10	1.2592E+10	1732000000	4.0787E+10	2.897E+09	1.33E+09
1563858757	0.108390216	0.075711722	0.204841079	0.712630477	1.495588135	130.7591111	1143300000	1.0548E+10	1.5101E+10	5581400000	1.0548E+10	1.4802E+10	4406900000	2946600000	1.4325E+10	385400000	1.13E+08
31008237	0.21038442	0.083947918	0.278132253	0.437577951	3.188140495	669.786729	14776080.9	70233722	176014859	53126096.4	70233722	160505624	39806521.5	12485811.6	162781963	30046951	287896
578797345	0.29804918	0.336411802	0.9643305	0.459940183	0.766870359	29.07902164	692100000	2322100000	2057300000	717700000	2322100000	5048700000	1167100000	1521900000	2980600000	110500000	1.06E+08
666666667	0.311284436	0.266631577	1.092443783	0.582300904	2.346640011	27.58270012	1108388000	3560692000	4157002000	1014595000	3560692000	6114866000	1662104000	708291000	4389240000	39328000	1.61E+08
137500000	0.136313344	0.050825071	0.245002994	0.632606029	0.682592556	1.46808243	43367000	318142000	853260000	177006000	318142000	502907000	116395000	170519000	35555000	22791000	39743000

Comb sheet2 -NF+CFFO

Using all variables

Example

Model Sig				0
minus 2 log likelihood				68.395
Cox & Snell R square				0.412
Nagelkerke R square				0.553
Accuracy>				
Non-fail	predict	%		74.3
Fail	predict	%		89.4
Overall		%		82.9
Variable Sig>				
X1				0.263
X2				0.704
X3				0.963
X4				0.412
CFFOTD				0.944
CFFOTCI				0.269
CFFOCL				0.822
TLTA				0.224
LCSC				0.277
FAINC				0.321
NF				
CFFO				0.006
Constant				0.704
Model(B factors)>				
Constant		1	0.28	
X1	-1.904	0.2799	-0.532929	
X2	-0.127	-1.063229	0.13503	
X3	0.087	-0.204635	-0.017803	
X4	0.007	96.86106	0.678027	
CFFOTD	0.016	-26.79205	-0.428673	
CFFOTCI	-0.959	-0.501797	0.481223	
CFFOCL	-0.047	-26.79205	1.259227	
TLTA	1.887	0.007855	0.014823	
LCSC	0.433	0	0	
FAINC	-0.001	2.533773	-0.002534	
NF			0	
CFFO	0	-1043872	0	
			1.866391	
Result>				
Exp				0.154681
Prob				0.86604

Using only those variables with significance .05 or <

Model Sig				0
minus 2 log likelihood				78.115
Cox & Snell R square				0.338
Nagelkerke R square				0.454
Accuracy>				
Non-fail	predict	%		74.3
Fail	predict	%		89.4
Overall		%		82.9
Variable Sig>				
X1				0.263
X2				0.704
X3				0.963
X4				0.412
CFFOTD				0.944
CFFOTCI				0.269
CFFOCL				0.822
TLTA				0.224
LCSC			0.028	
FAINC				0.321
NF				
CFFO				0.006
Constant				0.704
Model(B factors)>				
Constant		1	0.13	
TLTA	2.296	0.007855	0.018036	
CFFO	-8.79E-09	-1043872	0.009175	
			0.157211	
Result>				
Exp				0.854524
Prob				0.539222

Summary of results

		Y1	Y1+CFFO	Y1+NFS	Y1+CFFO+NFS	Y2	Y2+CFFO	Y3	Y3+CFFO	Y4	Y4+CFFO	Y5	Y5+CFFO
Aerosonde	1	99.82	73.16	99.08	99.08	81.64	53.92	63.91	71.5	56.08	72.89	65.91	64.18
Alamain	3	72.81	64.78	99.95	99.95	85.13	81.58	63.27	74.16	65.44	82.25	40.1	61.75
Australian Goldfields	3	55.45	82.5	99.99	99.99	75.56	75.48	63.39	99.9	99.99	99.99	57.02	99.59
Australian Kaolin	3	67.06	70.91	99.95	99.95	58.31	54.6	99.99	74.9	63.02	80.11	31.79	38.48
Australian Plantation Timber	1	63.31	71.86	84.51	84.51	89.72	77.79	71.01	66.24	84.06	95.44	61.52	70.17
Australian Resources	3	64.87	73.18	99.08	99.08	57.3	67.3	18.54	66.36	55.39	66.94	46.92	51.07
Australian Topmaking Services	1	69.96	78.03	84.51	84.51	55.62	60.78	63.2	66.37	59.11	75.73	67.83	72.75
<i>Barrack Mines(2)</i>	1	67.34	99.99	99.99	99.99	86.99	92.54						
Carlovers Carwash	1	67.77	83.5	99.99	99.99	73.1	81.15	60	83.53	68.13	84.42	78.03	86.95
Centaur Mining	3	68.57	74.08	99.99	99.99	73.91	81.48	57.65	66.9	59.5	75.27	67.03	71.86
Central Norseman Gold	1	45.37	73.41	99.08	99.08	69.37	86.34	59.73	79.07	66.45	79.17	27.97	45.1
<i>Chameleon Mining(2)</i>	2	99.76	77.54	99.99	99.99	67.15	67.31						
<i>Child Care Centres(3)</i>	1	54.95	78.43	84.51	84.51	71.4	76.55	63.37	87.28				
<i>China Convergent(4)</i>	1	96.89	74.15	84.51	84.51	93.8	77.97	79.46	81.16	65.51	82.27		
Clifford Corporation	3	64.92	68.36	99.08	99.08	75.34	77.5	63.08	71.08	56.22	72.47	99.99	99.99
Coplex	2	75.35	60.13	99.99	99.99	72.29	74.26	63.37	72.15	61.02	78.31	72.29	74.79
Cudgen Rz	3	29.81	83.45	99.08	99.08	62.97	66.35	52.34	68.71	58.58	75.67	38.49	45.42
Denehurst	3	97.13	76.86	21.69	21.69	80.4	85.54	59.32	77.55	52.83	68.06	61.59	72.09
Ectec	3	90.51	69.27	99.08	99.08	77.43	82.99	64.11	68	55.76	72.07	35.6	64.18
Farnell & Thomas	3	54.48	79.44	84.51	84.51	83.84	82.84	63.14	80.31	62.33	79.22	67.99	72.68
Federation Group	3	99.99	93.45	84.51	84.51	84.33	60.75	63.43	75.44	58.73	75.89	83.94	85.5
Golden West Refining	3	14.71	82.61	99.95	99.95	77.26	81.04	65.33	65.69	56.34	72.87	32.71	45.81
Greyhound Pioneer	2	20.09	99.67	99.08	99.08	92.8	97.19	64.71	94.39	87.65	96.68	95.62	98.44
Henry Walker Eltin	3	60.41	53.72	84.51	84.51	76.7	73.39	58.1	55.72	50.74	58.76	44.9	56.72
Huadu	2	92.07	77.92	84.51	84.51	12.95	52.66	63.3	76.61	61.45	78.14	75.92	72.02
Investment Austasia	1	70.55	70.48	84.51	84.51	35.02	54.16	73.35	61.54	43.9	57.36	76.45	73.62
Ion	2	37.4	70.53	21.69	21.69	73.73	70.36	61.5	73.12	68.68	83.41	66.2	80.01
Jennings	2	75.16	91.19	99.95	99.95	96.36	98.97	71.06	92.32	80.02	92.89	75.1	92.75
<i>Kinetic Power(1)</i>	3	83.1	88.76	99.08	99.08								
Laverton Gold	2	99.99	99.99	99.95	99.95	90.44	97.07	61.18	87.43	70.17	85.64	79.9	85.33
Macraes Mining	1	99.99	62.94	84.51	84.51	49.71	58.97	44.97	61.63	46.54	59.07	31.8	39.72
Milnes Holdings	1	49.04	64.11	21.69	21.69	76.05	82.28	60.51	67.65	34.15	42.7		
MIM Holdings	2	54.75	3.04	21.69	21.69	74.51	3.98	54.59	3.45	59.93	81.58	50.15	24.51
National Forge	3	86.73	86.99	84.51	84.51	79.49	83.71	62.85	75.15	54.23	70.79	50.65	66.83
Newmont Yandal	1	66.24	40.41	99.95	99.95	72.11	72.54	11.74	62.64	60.53	65.06	54.22	64.64
<i>Non-ferral Recyclers(3)</i>	2	52.84	77.97	99.08	99.08	80.46	85.92	63.37	58.62	57.81	59.58		
Otter Gold	1	71.98	92.18	99.08	99.08	81.51	88.57	59.62	77.98	60.24	75.82	52.14	60.61
Pasminco	3	99.99	99.99	99.99	99.99	93.64	89.7	63.37	87.64	49.78	16.67	45.8	36.76
<i>Phoenix Technology(3)</i>	3	79.07	56.42	84.51	84.51	99.99	59.06	64.02	37.5				

Summary of results

		Y1	Y1+CFFO	Y1+NFS	Y1+CFFO+NFS	Y2	Y2+CFFO	Y3	Y3+CFFO	Y4	Y4+CFFO	Y5	Y5+CFFO
<i>Planar Semiconductor(4)</i>	3	99.99	98.15	21.69	21.69	56.54	53.25	63.42	25.99	13.12	12.43		
<i>Recruiters Australia(4)</i>	2	46.64	75.99	84.51	84.51	73.52	77.48						
RGC	2	58.31	37.28	21.69	21.69	68.71	41.32	59.38	63.38	55.96	69.23	45.67	79.26
Ross Mining	1	38.13	82.65	84.51	84.51	58.77	73.03	57.58	61.67	64.03	79.08	71.51	75.76
Sons of Gwalia	2	56.78	74.99	84.51	84.51	71.14	68.75	39.52	59.19	58.68	63.27	53.63	64.44
<i>Stanilite(4)</i>	2	43.32	62.72	21.69	21.69	74.08	75.48	61.8	69.78	43.27	55.58		
<i>Stockford(4)</i>	3	87.69	61.86	84.51	84.51	65.93	63.84	63.72	67.35				
Strarch International	3	14	67.24	21.69	21.69	82.14	90.5	63.4	89.6	83.65	94.76	96.12	99.61
Target Resources	2	70.86	62.97	84.51	84.51	82.33	71.34	63.41	74.73	62.83	79.83	43.5	70.32
		67.416	73.94271	81.26292	81.26291667	73.86149	72.96979	60.63886	70.031364	60.289024	72.374878	59.6111111	68.436389
Air New Zealand	0	58.64	15.17	99.08	99.08	72.8	12.34	57.52	18.4	57.81	17.18	43.11	64.51
Alcoa	0	50.42	0.01	21.69	21.69	41.72	0.01	54.79	0.01	57.89	0.01	49.4	0.01
Amadeus Energy	0	41.71	65.47	21.69	21.69	47.64	58.75	23.23	69.83	59.91	76.42	68.2	74.64
BHP	0	9.1	0.01	21.69	21.69	64.11	0.01	45.17	0.01	60.44	0.01	58.18	0.01
Bluescope Steel	0	40.82	33.88	21.69	21.69	68.89	0.01	59.52	4	56.18	4.13		
Brambles	0	39.98	0.01	21.69	21.69	58.48	0.01	48.47	0.01	60.85	0.22	52.29	1.28
Cabcharge	0	15.19	53.02	21.69	21.69	60.46	55.41	60.15	48.85	30.77	34.63	26.66	34.33
Caltex	0	35.82	2.29	21.69	21.69	72.26	5.78	56.41	14.57	56.26	21.39	39.01	54.44
Capral Aluminium	0	77.11	84	21.69	21.69	73.56	78.08	63.65	68.92	50.98	60.69	44.02	58.85
Coffey International	0	34.92	59.44	21.69	21.69	72.34	77.16	63.26	67.02	44.57	57.55	35.93	57.02
CSR	0	33.23	18.66	21.69	21.69	67.73	17.14	51.68	37.51	58.62	0.34	53	1.27
Goldstream Mining	0	45.51	12.19	21.69	21.69	59.08	64.06	63.42	42.94	28.12	34.22	17.85	21.08
Hill End Gold	0	42.98	68.77	21.69	21.69	83.71	58.89	63.38	70.17	69.11	85.38		
Hills Industries	0	37.33	50.89	21.69	21.69	71.49	71.26	60.13	57.29	46.76	54.69	37.32	53.64
Illuka Resources	0	39.87	36.45	21.69	21.69	60.85	29.98	54.03	50.47	55.89	56.6	42.41	46.61
James Hardie	0	17.58	16.8	84.51	84.51	19.54	19.33	47.92	37.15	51.37	52.42	41.99	47.25
John Shearer	0	50.56	53.46	21.69	21.69	61.81	64.45	60.44	52.89	36.05	45.58	33.11	44.14
Kimberley Diamond	0	73.44	79.02	21.69	21.69	61.53	64.97	63.87	74.74	70.68	86.53	82.62	88.18
Leighton Holdings	0	46.92	6.65	21.69	21.69	69.69	1.67	63.32	10.52	55.73	33.76	48.35	12.16
Macquarie Airports	0	31.16	56.09	21.69	21.69	56.72	29.19	24.39	63.57	42.11	50.1		
Macquarie Infrastructure	0	56.82	24.13	21.69	21.69	69.93	18.78	54.63	41.35	57.79	41.86	61.41	64.61
Midas Resources	0	85.58	74.91	21.69	21.69	74.58	54.08	64.15	70.19	41.93	54.87	37.89	38.6
Mt Gibson Iron	0	21.67	57.86	21.69	21.69	55.58	60.41	68.38	83.13	43.97	58.05	68.47	70.21
National Hire Group	0	50.91	70.63	21.69	21.69	62.56	64.8	53.68	60.61	66.7	82.98	64.78	79.85
Newcrest Mining	0	65.77	40.87	21.69	21.69	71.51	32.99	42.5	40.72	64.36	57.65	60.67	68.95
Newmont Mining	0	46.6	0.01	21.69	21.69	99.96	0.17	50.07	2.93	59.2	0.32	54	67.83
Nylex	0	86.14	83.62	21.69	21.69	83.42	89.2	63.99	82.32	47.4	58.58	25.75	59.35

Summary of results

		Y1	Y1+CFFO	Y1+NFS	Y1+CFFO+NFS	Y2	Y2+CFFO	Y3	Y3+CFFO	Y4	Y4+CFFO	Y5	Y5+CFFO
Orica	0	58.89	7.11	21.69	21.69	75.27	15.11	58.7	9.39	54.12	11.56	44.86	28.91
Programmed Maintenance Services	0	37.5	51.94	21.69	21.69	0.07	77.77	56.06	55.33	38.95	48.68	19.47	39.43
Qantas	0	59.87	0.01	21.69	21.69	72.38	0.01	58.08	0.01	64.67	0.24	63.94	3.17
Rio Tinto	0	16.46	0.01	21.69	21.69	42.85	0.01	54.58	0.01	64.67	0.01	62.46	0.01
Santos	0	30.84	0.01	21.69	21.69	57.87	1.42	24.66	2.26	62.54	3.18	64.93	13.99
Steamships Trading	0	30.34	73.74	21.69	21.69	59.65	66.34	60.1	68.27	56.38	71.84	58.4	68.98
Transfield	0	49.86	59.57	21.69	21.69	78.82	74.58	59.16	66.36	57.29	70.16	46.47	63.14
Woodside Petroleum	0	19.76	0.01	21.69	21.69	48.34	0.01	25.58	0.43	61.53	0.33	59.24	2.6
		43.98	35.906	25.696	25.696	62.77714	36.11943	53.68771	39.205143	54.045714	38.061714	48.943438	41.532813