THE SURVIVAL OF INITIAL PUBLIC OFFERINGS IN AUSTRALIA

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Abstract:

This paper examines the survival of Australian initial public offerings. The Cox proportional hazards model is used to test the value of the information available at the time of listing and whether this information foreshadows the likelihood of survival or failure of an initial public offering. The number of risk factors listed in the prospectus and the size of the firm are both found to be negatively related to survival. The size of the offering and the forecast dividend yield are found to be positively related to survival. The likelihood of survival is also found to vary with industry and firms in the finance and natural resource industries are more likely to survive than firms in other industries.

Keywords: Survival analysis, Cox proportional Hazards model, IPO, Australia

JEL Classification: J23

1. INTRODUCTION

In finance literature, the initial public offering (IPO) of stock has been extensively researched. The primary focus of the IPO research among academics and practitioners has been the issue of underpricing at the time of offering. The issue of underpricing is important from the market efficiency point of view but does not address the fundamental investment premise of stock investment: performance and long run survival. The focus of this thesis is the survival of IPOs in an Australian context. While underpricing is intrinsically linked to short run performance, the survivorship of firms provides a long run performance measure. Survival, being simple in nature, is a powerful and ultimate performance measure because it offers a clear test of whether a firm has performed well enough to survive, given the competitive nature of the capital markets. From a business environment perspective, it also indicates whether a firm has performed well enough to maintain its corporate identity.

For owners and management of an unlisted firm, the decision to take the firm public is not made without thorough consideration. Yet the failure rate among stocks which debut on stock exchanges is still relatively high. Previous studies of American IPOs have shown that about 30% of IPOs are delisted within the first 5 years (Jain and Kini, 1999). Of the sample of Australian IPOs used in this thesis, 20% fail within the first 5 years and 29% fail within the first 7 years. Such high failure rates have significant implications for investors and management. Despite these failure rates there is a distinct lack of analysis of the survival of IPOs in the Australian context. To our knowledge, we could not find any study that addresses the long term survivoship issue for Australian IPOs.

Owners of listing firms are concerned with maximising the value of their financial stake in the company and are presumably concerned with the subsequent post-listing performance of the initial public offering. For the management, ensuring survival is a dominant factor in protecting their financial interests in the company and also has implications regarding future managerial endeavours and career prospects. For an investor, relative performance and survival are important considerations for investment decisions. While the future operating performance is important in such a decision, the ultimate survivability of a firm is an important factor. While a firm is still listed, especially when the

firm may be experiencing poor operating performance, the likelihood of survival plays a key part in investor support and future performance. It follows then that survival analysis can be a powerful tool in analysing buy and hold investment strategy. Survival analysis also provides a useful guide to understanding the key offering variables which may have a significant impact on the future viability of the firm. The purpose of the model is to provide evidence about whether differences in characteristics can explain differences in survival. [1]

In the capital markets, investor expectations and investment decisions are based on all publicly available information. In the case of initial public offerings the majority of available information is contained in the prospectus. In this paper the relative survival of initial public offerings is examined using the Cox proportional hazards model using publicly available information from the IPO prospectuses that contain a range of common factors encompassing firm characteristics scuh as financial and governance characteristics, and offering characteristics such as methods of offering and future forecasts. We use the Cox proportional hazards model we test the central hypothesis whether the information available at and closet to the time of listing affects the relative mortality of survival. Other minor hypotheses of this paper relate specifically to the individual characteristics of the firm, and the ultimate goal of this survival analysis is to provide evidence about whether certain characteristics of an IPO are informative about its chances of survival.

This paper makes several important contributions to the understanding of IPOs in Australia. Firstly, we find that there is a high rate of failure among Australian initial public offerings within the first 5 and 7 years of their issue date. It suggests that investors who have subscribed to a buy and hold investment strategy in an IPO would have experienced significant loss of wealth. Secondly, it provides an Australian perspective of the survival of initial public offerings. To our knowledge, this study is

[1] The decision to focus on relative mortality and the use of this survival model also limits the assumptions needed, and thus enhances the credibility of the results. This is because the parameters of the model can be estimated without the need to make any assumptions about the form of the baseline hazard. The baseline hazard is a hazard rate which is a function of time but is independent of the covariates. In other words it is defined as the rate of change at which an IPO alive at time t is dead at time t+h (where h is a very small time interval, and the value of each of the factors of the IPO is 0).

the first to examine the survivorship issue of IPOs in Australia. Thirdly, this paper provides an insight into the informational value of data provided in IPO prospectuses. To the extent that investors can determine the significance of factors listed in IPO prospectuses in relation to the future performance and survivorship of firms, it provides an understanding of the relative importance of these factors. This paper confirms the informational value of the number of risk factors for Australian IPOs and suggests that the number of risk factors listed in the prospectus is negatively related to survival[2].

This paper also finds that survival varies with industry and that IPOs in the natural resource and finance industries are more likely to survive than other firms. The result that initial public offerings in the natural resource industries are more likely to survive than firms in other industries complements studies into the performance of Australian initial public offerings. The underperformance of Australian IPOs as documented by Lee, Taylor and Walter (1996) is found to be not present in mining sector (How, 2000), and hence the results of this paper also supports the link between survival and performance of Australian IPOs. This paper also shows that the size of the offering is positively related to the survival of Australian IPOs.

The remainder of the paper is set out as follows. Section 2 provides a brief analysis of the prior literature of the survival, performance and characteristics of initial public offerings and provides an insight into the factors chosen in this paper for analysis. Section 3 provides an explanation of the hypothesis for each factor examined. Section 4 discusses the data collected and the methodology of the Cox proportional hazards model. Section 5 of this paper examines the results of this paper and Section 6 concludes.

[2] The number of risk factors was also found to be negatively related to survival for American IPOs by Hensler, Rutherford and Springer (1997) and Bhabra and Pettway (2003).

2. LITERATURE REVIEW

2.1 SURVIVAL ANALYSIS

There is a limited amount of published research into the survival of initial public offerings. Many papers include survival as a side issue rather than the focus of the paper and others choose to focus on specific groups of initial public offerings which limits the application of the results.. In Australia's case the number of initial public offerings is relatively small, meaning that the number of IPOs which can be classified as belonging to a certain subgroup is even smaller. Differences in definitions of what constitutes survival and non-survival and non-conformity in the length of the observation period are also apparent. It should also be noted that of the papers which analyse survival, only a few use the Cox proportional hazards model with most papers using regression models.

The research of Hensler, Rutherford and Springer (1997) into survival is significant. Using a Cox proportional hazards model for a sample of American IPOs listed between 1976 and 1984 they examine the relationship between certain characteristics and survival. The findings presented suggest that the age at listing, the size of the offering, the percentage of shares owned by insiders, and the IPO activity in the market at the time of listing are positively related to survival. The results also propose that survival time decreases with the number of risk factors listed in the prospectus and also with general market level at the time of listing. Industry is also found to be significant to the survival of an initial public offering.

Similar results are obtained when examining the life duration of new Portuguese manufacturing firms created in 1983 using Cox's hazard model. Mata and Portugal (1994) find that survival varies positively with start up size, the number of plants operated, and the industry growth rate but is negatively related to the extent of entry into the industry.

The effect of the form of the offering on the survival of American firms has also been discussed by Shultz (1993). In support of the hypothesis that agency cost theory can explain the form of the offering Shultz found that firms which conducted offerings consisting of a bundled share and option were less

likely to survive than firms which issued shares. However, in a similar study of Australian IPOs How and Howe (2001) found no significant difference between the survival of firms which issued bundled common stock and options and firms which issued just common stock.

Jain and Kini (1999) examine the life cycle of initial public offerings listed in America between 1977 and 1990 and find that of a sample observed over 5 years 69% survived, 17% were acquired and 14% were non-survivors. Concerned with determining factors which influence the transition into one of these 3 states, the paper tests for differences in the means of the characteristics of the 3 states and also uses a multinomial logistic regression. The results establish that size, pre-IPO operating performance and investment banker prestige are positively related to survival. Concurrently, firm risk, industry barriers to entry and higher industry concentration are found to be negatively related to survival.

As a compliment to their study of the relationship between prospectus information and subsequent performance of initial public offerings Bhabra and Pettway (2003) also examine survival. Using a logistic regression model which classifies a firm depending upon whether or not it fails or delists within 5 years, past profitability, relative offer size, spending on research and development, the size of the firm and the number of risk factors in the prospectus are found to be significant.

Platt (1995) also uses a regression model to analyse the survival of American IPOs 3 years after issue. Platt chooses to concentrate on bankruptcy as the only reason for non-survival, and finds that of the group of financial ratios tested, the ratios of interest expense to cash and inventory to cash-flow are positively related to the likelihood of failure. Long term debt to cash-flow is also found to be positively related to the likelihood of failure, but further analysis suggests that this is dependent upon the prime rate being high. Thus the paper's main contribution is showing the importance of capital structure to IPOs and their endeavours to avoid bankruptcy.

Cox proportional hazards model is also used to examine the risk of takeovers. (Trimbath, Frydman & Frydman, 2001) For a sample of U.S corporations ranked in the Fortune 500 for at least one year

between 1980 and 1997, the model shows that there is a significant positive relationship between the risk of takeover and cost inefficiencies per unit of revenue. Firms with costs per unit revenue above the industry benchmark are more susceptible to be taken over, as are firms which are smaller than the sample median. This result supports the notion that non-surviving firms under-perform prior to them being delisted.

2.1 PERFORMANCE

The long run under-performance of initial public offerings is well documented. It is intuitive that a relationship should exist between survival and long run performance and central to this is the continual use of buy and hold returns when analysing performance. Buy and hold strategies or static trading strategies are reliant on the firm surviving, while the ability of a firm to perform often determines the longevity of survival. After all, while a firm is still listed there is a possibility that the firm will be able to recover and thus there is a potential upside to the share price.

Investment decisions are concerned with relative performance and survival versus non-survival provides a definite distinction between a firm which is performing well and a firm which is not performing. Subsequently the factors which affect performance should also affect survival, and the literature which examines the performance of initial public offerings provides a rich source of related information.

Ritter (1991) investigates the long run underperformance of initial public offerings by analysing the 3 year buy and hold returns for companies which listed between 1975 and 1984. Of particular interest is the result that the relative underperformance of initial public offerings, when compared to matched firms, is greatest for firms with small offer sizes. Equally relevant is the result that there is a strong positive monotonic relationship between the age of the firm going public and its corresponding aftermarket performance.

Bhabra and Pettway (2003) examine the value of prospectus information to investors by analysing financial and operating performance data and initial public offering characteristics and the relationship to performance. The findings suggest that while prior profitability, firm size, relative offer size and the degree of underpricing are related to one year abnormal returns, there is no evidence to suggest a relationship between prospectus information and long run performance. However, Bhabra and Pettway also show that firms which fail show poorer stock return performance than those firms which continue to trade. Thus their findings about factors which affect survival (as discussed earlier) become increasingly important.

Rather than focusing on the stock price performance of firms, Jain and Kini (1994) instead examine the operating performance of firms after an initial public offering. Their investigation finds that there is a positive relationship between managerial ownership retention and post-issue operating performance. This result is consistent with both agency theory hypothesis and signalling theory hypothesis.

Balatbat, Taylor and Walter (2004) investigate the operating performance of Australian initial public offering between 1976 and 1993. Examining the changing ownership structure and corporate governance characteristics for the first 5 years following the IPO, they find that some relationships exist to operating performance. Most notably, is the conclusion that operating performance is significantly related to insider ownership for the 4^{th} and 5^{th} years but that ownership structure has no impact in the first 3 years. Of the corporate governance characteristics tested, there is weak evidence to suggest that dual board leadership improves operating performance.

Lee, Taylor and Walter (1996) test the post listing returns of a sample of Australian industrial IPOs listed between 1976 and 1989. They find that initial public offerings on average, under-perform over the long run. Further evidence is provided in their comparison of the firms in the sample delisted due to failure to pay listing fees or due to liquidation, and the rate of removal due to these reasons of listed industrial firms. They find that the probability of being removed for these reasons is 3.88% per annum

for the sample of IPOs, which is 2 to 3 time higher than 1.31% per annum for the industrial population. Examining 1 year, 2 year and 3 year average returns, there is some evidence to suggest that smaller issues and issues which are fully subscribed and list relatively quickly are not associated with underperformance. It is also interesting to note that contrary to the results of other papers the level of retained ownership is found to be significantly negatively related to performance.

An examination of Australian mining IPOs issued between 1979 to 1990 finds that there is no significant evidence of underperformance during the 3 year period after listing (How, 2000). When contrasted with the results of Lee, Taylor and Walter (1996) (who find evidence of long run underperformance for Australian industrial initial public offerings) there is evidence that the relative performance of IPOs varies with industry. Further extending this, it is reasonable to suggest that the probability of survival should also vary with industry.

2.2 CHARACTERISTICS

The efficient market hypothesis suggests that prices reflect all available information and in the case of initial public offerings the majority of available information is contained in the prospectus. The value of the prospectus as an investment tool is therefore of great importance. Analysis of the characteristics of listing companies provides insight into such areas as the stage in a firm's life cycle which a firm lists, the motives for listing and the corporate and ownership structure adopted. The implications are not only limited to investors but are also of interest to managers and owners. Those people with ownership prior to listing are concerned with maximising value and the post-listing success of a firm is integral to protecting their financial interests. For management ensuring survival is paramount to protecting their jobs. Thus the decision to take a firm public is not made without thorough consideration, yet the failure rate is still relatively high.

The board characteristics of Australian IPOs which lodged prospectus between 1994 and 1997 are examined by Da Silva Rosa, Izan and Lin (2004). A comparison of the sample against the ASX recommendations for good governance released in 2003, finds that the average board size of 5 is less

than the Australian stock exchange's implied recommendation of a minimum of 6 directors. The independence of the board is also analysed by classifying directors as executives or non-executives and further classifying non-executive directors as grey or independent directors. It is found that less than a third of the boards can be considered to consist of a majority of independent directors. They also find that while the majority of initial public offerings have a separate chairman and chief executive, only about half of the firms have an independent chairman. This suggests a tendency for initial public offerings not to follow what is considered ASX best practice. While it is not compulsory to follow the recommendations it is required that the company address each of the breaches in their annual report. This transparency means that for smaller companies the perceived benefits associated with corporate governance, are outweighed by the costs of compliance.

The categorisation of initial public offerings based on financial characteristics is conducted by Dimovski and Brooks (2003) to determine the type of firms which listed between 1994 and 1999. They find that 22% had options attached to the shares, 82% were underwritten and 67% had an independent accountant that was one of the Big 5 accounting firms. Other data examined includes the issue price, issue size, forecast earning to offer price ratio and forecast dividend to offer price yield. For each of these factors the difference between the mean and the median is significant in size, whilst the range (maximum minus minimum) is also relatively large. The fact that these statistics do not conform to a tight spread, highlights the differences in the type of firms which are listing. As noted earlier, initial public offerings have a relatively high rate of failure and such large differences in the financial characteristics provide encouragement that a relationships exists between these characteristics and the likelihood of survival.

3. HYPOTHESIS

Based on the results of earlier research specific to initial public offerings and established underlying theory, the following hypotheses have been developed.

Null Hypothesis: Information available prior to or at the time of listing does not affect the relative mortality of Australian IPOs.

Alternative Hypothesis: Information available prior to or at the time of listing does affect the relative mortality of Australian IPOs.

The fundamental hypothesis of this paper is that the information contained in the prospectus foreshadows the likelihood of survival or failure for an initial public offering. Essentially this means that the characteristics of an initial public offering at the time of listing have an influence on the operational well being of the firm in question.

Relative mortality is the emphasis of this paper because it provides a direct comparison of survival between firms with different characteristics. While some papers have attempted to model survival times, the results should not be considered conclusive because of the assumptions involved in the model. The use of Cox proportional hazards and the limitation of any analysis to the relative mortality minimizes the assumptions needed and in doing so adds to the credibility of the results.

A point of conjecture however amongst papers which deal with survival is the definition of survival and failure. This paper defines a survivor as simply any firm which is still listed. Subsequently, firms which are delisted, suspended, acquired or merged are classified as non-survivors. The classification of acquired and merged firms as non-survivors is consistent with Welbourne and Andrews (1996) who found that seven out of eight merged firms experienced declining stock prices prior to the merger. Further justification is based on the logic that acquired and merged firms no longer possess the same corporate structure and so effectively they cannot be considered to be the same company. The inclusion of suspended firms is based on the notion that suspension from trading merely foreshadows the company being delisted.

The time of observation is the second potential difference compared with other papers which examine survival. The observation period of this paper is 7 years after the date of issue or until the firm is delisted. Seven years was chosen to represent the sample being observed over a full business cycle.

Since information is a general term the major hypothesis needs to be divided into a series of minor hypotheses to test specific categories of information in the prospectus. It should be recognized that with the exception of the financial characteristics, all other characteristics are available at the time of listing. The inclusion of financial information which was only available after the time of issue was to ensure consistency in definitions. Such an inclusion of post-issue information is justified because the prospectus provides guidance about performance, and since the financials are from the first available set of full year statements a large part of the financial year occurred before the issue date.

It must also be noted that the permanency of the various factors being investigated is central to the hypothesis that information available at the time of listing has an effect on survival. Since the observation period is over a long time period the results should be indicative of the informational value of past information to the future prospects of a firm. With this in mind the characteristics chosen for investigation are independent of time.

A list of the characteristics examined can be found in Table 1 below along with the expected relationship to survival. It must be remembered that if something is positively related to survival then it is negatively related to failure. Thus since the Cox model is a model of the rate of transition to the non-survivor state the signs of the coefficients relate to failure. A brief explanation of the theory behind each characteristic and the expected relationship with relative mortality follows.

Age at Offering (+)

It is expected that the age at offering of the IPO should be negatively related to its likelihood of failure. Established firms are expected to have a stable source of business and so are more likely to

survive, while young firms are considered to be unproven and thus speculative. More information is available for older firms and as a result, uncertainty and risk are associated with younger firms.

Offer Price (+)

The offer price of the firm is expected to be positively related to survival. On the Australian Stock Exchange the minimum issue price is $0.20, and low issue prices are associated with speculative stocks. It is common practice for floating companies to have a minimum subscription of a set number of shares. Thus all other things remaining equal, shares with a low issue price allow for a person to invest a relatively smaller percentage of their wealth in the company, and this is consistent with the firm being of relatively higher risk.

Size of the Offering (+)

The size of the offering is expected to be positively related to the survival of the firm. Apart from the fact that larger offerings are associated with larger firms, larger offerings also signal market confidence. It is far harder in the public domain to raise a large amount of capital for a highly speculative company than for a company with good prospects. The tendency for institutions to favour larger offerings reiterates this, and as a result large offerings are typically subject to more stringent monitoring. Studies of American IPOs have found that offer size is positively related to survival (Hensler, Rutherford and Springer, 1997; Jain and Kini, 1999) and performance (Ritter, 1991).

Ownership Retained (+)

It is expected that the percentage of the company retained by the original owners should be positively related to survival. This expectation is based on both signalling hypothesis and agency theory. The level of ownership acts as a signal about the quality of the issue and its future prospects and sheds light as to the motives behind the transition from private to public company. Ownership dilution reduces the incentive of the original owners and management to use the funds raised in the most value maximising way, corresponding to an increase in agency costs.

Attachment of Options to the Offer (-)

It is hypothesised that the form of the offering can provide an insight into the business plans and prospects of the company under consideration. In accordance with agency theory, unit offerings (a common share bundled with a warrant) provide an incentive to management to increase the share price to ensure that the warrant is converted. Since proceeds from unit IPOs are concerned with determining the viability of potential investments and since positive NPV projects are hard to find, fewer unit IPOs survive. Conversely, companies which issue only shares are without the incentive to increase the share price and therefore management can use the proceeds to ensure survival and the survival of their jobs, even if this means investing in negative NPV projects. Thus it is expected that unit IPOs will be positively related to the likelihood of failure.

Underwriter Backing (+)

It is expected that firms with underwriter backing should be more likely to survive than firms without backing. The reliance of underwriters on reputation to maintain both corporate clients and investors should mean that it is in the underwriter's best interest to endorse firms with sound prospects. This coupled with the fact that most underwriters invest in the offers they underwrite, adds to the positive signalling. In ideal circumstances this variable would be evaluated based on reputation, however, due to the data constraints imposed by the sample being Australian firms, a dummy variable is used instead.

Issue Costs as a Percentage of the Offer Proceeds (-)

The percentage of issue costs to the offer size should be negatively related to the survival of the firm. This is based on the notion that issue costs are incurred in order to ensure that the issue is fully subscribed and that the maximum amount of capital is raised. It is reasonable to suggest that a good firm will sell itself, and so issuing costs should be low for firms which are considered low risk.

Auditor in the Big 5 (+)

The use of an auditor from one of the big 5 accounting firms namely; PricewaterhouseCoopers, KPMG, Arthur Anderson, Deloitte Touche Tohmatsu and Ernst and Young should add credibility to the information contained in the prospectus. While the well documented public demise of Arthur Anderson has detracted from this credibility, the large accounting firms are easily recognized in name and reputation by the common investor. As a result it is contended that since the accounting information is considered of better quality, it should contribute positively to survival. Thus while a firm may be risky, this risk is fully disclosed and not hidden.

Earnings to Price Ratio (-)

The ratio of the forecast earnings per share to the offer price should be negatively related to survival. This is based on the theory that the E/P ratio is the measure of the internal rate of return of the company. Thus speculative firms should have a higher E/P ratio than more stable firms so that this increased risk and uncertainty is compensated by a greater return.

Forecast Dividend Yield (+)

Dividends are typically associated with firms which have a stable income stream and therefore more confidence and certainty about their future prospects. Dividends are not associated with growth firms. Thus, generally firms which pay dividends are less speculative, hence the expectation that dividend yield should be positively related to survival.

Number of Risk Factors in the Prospectus (-)

Assuming full disclosure, the number of risk factors listed in the prospectus should be negatively related to survival. Riskier firms are more likely to experience negative outcomes for their operations. The continual realisation of operational losses over time erodes the firm's financial resources and asset base. Hence riskier firms are more likely to experience financial distress, bankruptcy or liquidation. The informational value of the number of risk factors was found to be significant for American IPOs by Hensler, Rutherford and Springer (1997) and Bhabra and Pettway (2003).

Non-Executive Chairman (+)

A non-executive chairman is another characteristic associated with good governance. It is a recommendation of the ASX Good Governance Council (2003) that the role of chairman and chief executive officer should not be exercised by the same person and that the chairperson should be an independent director. Technically there is a slight difference between a non-executive director and an independent director but for the purposes of ease of measurement this paper assumes that all non-executive directors are independent. Even with this assumption, this variable is still an effective measure of leadership duality. The expectation that a non-executive chairman will increase the likelihood of survival is based on the theory that a board led by an independent leader will better represent the interests of the shareholders and more effectively monitor the management of the company. A reduction in agency costs and an improvement in operating performance due to this separation of powers should transpire.

Number of Directors (+)

The number of directors should be positively related to survival. Guidelines of good governance endorse larger board sizes based on the notion that greater accountability will result. Greater monitoring should reduce agency costs and the misallocation of funds, ensuring that the decisions made are value maximising and essentially in the best interests of the shareholders. As a result a more efficient firm is more likely to survive.

Percentage of Independent Directors (+)

The level of independence of the board of directors is also expected to be positively related to the survival of the initial public offering. Another of the ASX Good Governance Council's (2003) recommendations is that firms have a board comprised of a majority of independent directors. For the purposes of this paper all non-executive directors have been defined as being independent. A board which comprises of a majority of independent members should be more effective monitors of

management, since the influence of management (executive directors) on the decisions of the board should be reduced.

Industry (?)

Just as the level of relative performance varies with industry, the rate of survival should also vary with industry. It is expected that industries with large barriers to entry and which have a high concentration of firms and thus more competition, should be negatively related to survival. The results of Mata and Portugal (1994) support the effects of industry related factors on the survival of Portuguese firms, while Hensler, Rutherford, and Springer (1997) find that the survival of American firms varies with industry. Numerous studies into performance have also controlled for industry effects while in Australia the contrasting results between industrial firms (Lee, Taylor and Walter, 1996) and firms in the mining sector (How, 2000) suggest that the relative performance of Australian IPOs varies with industry.

Leverage (-)

The trade-off theory of capital structure postulates that the financing decisions made by a firm balance the benefits (tax breaks) and costs (financial distress) of debt. As the level of debt increases the likelihood of financial distress becomes greater, while the restrictions of debt covenants also impact on the ability of the firm to operate efficiently (in the shareholders best interests). The importance of capital structure to survival and its usefulness as a warning mechanism of potential bankruptcy is discussed by Platt (1995). Thus it is expected that the survival of the firm is negatively related to its level of leverage.

Profitability (+)

The profitability of the firm is also a key to its survival because operational losses are not sustainable in the long run. Thus the profitability of the firm in the first full year after issue should give an indication of the company's prospects. Firms which are profitable from the beginning of their public

life have proven their viability. Viable firms are less risky and thus profitability is positively associated with survival.

Size of the Firm (Total Assets) (+)

Size should have a positive effect on survival. This is because larger firms are better positioned than smaller firms to weather tough economic periods or recover from past mistakes in strategy and direction. Since larger firms have a larger asset base to liquidate, their ability to prolong survival is greater than firms with a smaller asset base.

Tangibility of Assets (+)

The more tangible a firm's assets, the greater the firm's likelihood of survival. Liquidity ensures that if a firm's assets need to be sold, then close to the maximum amount can be obtained. Subsequently, firms which have liquid assets are better positioned to use their resources to maximum effect in order to avoid financial distress or bankruptcy. Hence liquid firms are more effectively able to prolong survival.

Total Asset Turnover (+)

Total asset turnover is a measure of how efficiently assets are used by a firm to generate sales. As a result, it is expected that the ratio should be positively related to survival, because the efficiency of a firm is paramount to its competitiveness, and the ability to compete is vital to survival. In particular there is a relationship between inefficiency and the likelihood of being taken over (Trimbath, Frydman and Frydman, 2001). This variable should be sensitive to the industry of the firm, and the inclusion of an industry variable should help control for such effects.

4. DATA AND METHODOLOGY

4.1 DATA

The credibility and integrity of any research is reliant upon the quality of the data which is used. The initial sample consisted of firms which according to *Connect 4 Company Prospectuses* database issued a prospectus in the years 1995, 1996 or 1997. For these firms the listing date was obtained from the

Aspect DatAnalysis database. This was done to ensure that the prospectus was for an initial public offering since the *Connect 4* database does not differentiate between initial and seasoned public offerings prior to 1999. The issue date was also used to filter from the sample, initial public offerings which did not list at least 7 years prior to 31 December 2004. This constraint was imposed to ensure that the companies can be observed over an entire business cycle.

The industry classification of these firms was obtained from the *SDC* database and firms classified as REIT (Real Estate and Investment Trusts) were filtered from the sample because they are subject to different listing rules. This exclusion is consistent with a number of contemporary papers about Australian initial public offerings (How and Low, 1993). The trading status, date of delisting and reason for delisting was obtained from http://www.delisted.com.au. Where available, the balance sheet and profit and loss information for the year listed was obtained from *Aspect Huntley Financial Analysis* database. The use of the database ensured that definitions such as what constitutes plant, property and equipment remained consistent. The financial information used was for the first available set of financial statements available after listing. A constraint was used, which required that the statements must be for the financial year ending within 12 months of the issue date. This was to protect the relevance of the inclusion of post-issue information in the analysis, since at least part of the financial year included would have occurred before the issue date. Where full company data was not available, values were not recorded and this was taken into consideration in the analysis. The majority of the remaining information was collected from the prospectus of the company in conjunction with *Aspect DatAnalysis* and *SDC* databases where appropriate. The end sample consists of 154 initial public offerings in Australia which listed on the Australian Stock Exchange at least 7 years prior to 31 December 2004.

While the quality of the data is paramount to an investigation, how this data is used is also important and so a focus on the testing procedures and the methodology is also warranted. The use of the data to obtain the factors listed in the hypothesis section follows, while a brief explanation of the Cox proportional hazards model is found in the next section.

4.2 THE COX PROPORTIONAL HAZARDS MODEL

This paper uses the Cox proportional hazards model to examine the survival of initial public offerings. This method of survival analysis has been applied in areas such as biomedical science, actuarial science and some areas of finance (detailed in literature review). However, since the model will not be familiar to most readers the opportunity has been taken to briefly explain the methodology, the features of this model, and some of the comparative advantages which it has over other survival analysis models[3].

The probability of survival from one time period to the next is taken as a function of the force of mortality or the hazard rate. The hazard rate is the rate at which a life alive at time t is dead at time t + h, where h is a very small time interval. Thus the hazard rate can be considered the instantaneous rate of change from a state of survivor to the state of non-survivor. Therefore the lower the force of mortality the more likely the individual under observation (in this case the initial public offering) will survive.

The model takes the form:

$$\lambda(t; z_i) = \lambda_0(t).\exp(\beta z_i^T)$$

Where: $\lambda(t; z_i)$ = the hazard rate at time t of the life i

$\lambda_0(t)$ = the baseline hazard is a function of t but is independent of the covariates. It is the hazard rate at time t for a life with z_i values equal to 0.

β = 1 × p vector of regression parameters = $(\beta_1, \beta_2, \ldots, \beta_p)$

z_i = 1 × p vector of covariates = $(X_{i1}, X_{i2}, \ldots, X_{ip})$

Thus the hazard rate at time t of an initial public offering is a function of an underlying baseline hazard function (describing the expected time to failure of the sample of initial public offerings) and a vector of factors which have been hypothesised as affecting the time until failure. While some papers

[3] This discussion has been adapted from information contained in Cox (1972), *SPSS 13.0 for Windows* (2004) and *ActEd Study Materials: Subject CT4* (2004).

have assumed a distribution for the baseline hazard, for the purposes of this paper such an assumption is not necessary. However, if the absolute values of the force of mortality were required, then the baseline hazard would need to be estimated. This paper is concerned with relative mortality and identifying factors which are related to a firm's survival and thus has no intentions of predicting survival times. This interest in relative mortality leads to the Cox proportional hazards model.

The proportional hazards model takes the form:

$$\frac{\lambda(t; z_i)}{\lambda(t; z_j)} = \frac{\exp(\beta z_i^T)}{\exp(\beta z_j^T)}$$

Put simply the proportional hazards model allows for the relative mortality of two individuals to be examined (in this case IPO i and IPO j). As a result it advantageously removes the need for any assumptions about the distribution of the baseline hazard because the baseline hazard on the numerator and denominator cancels out. Since the Cox proportional hazards model allows for β to be estimated without any assumption about the distribution of the baseline hazard, the model is semi-parametric.

The values for the regression parameters (β) are estimated using an adaptation of the maximum likelihood technique:

$$L(\beta) = \prod \frac{\exp(\beta z_j^T)}{\sum \exp(\beta z_i^T)}$$

Essentially the likelihood equation is the product of the force of mortality of the IPO which dies at time tj, divided by the total force of mortality for the IPOs which are at risk of dying at time tj. This effectively allows for censored and complete lifetime data to be used in the construction of the model and this is another advantage of using the Cox proportional hazards model. Censoring refers to initial public offerings which survive for the period of the observation, while complete lifetime data refers to those initial public offerings which fail. As a result the model makes use of all the duration

information available. Thus by taking logs and differentiating with respect to $\boldsymbol{\beta}$ the maximum likelihood estimate of each of the regression parameters is obtained.

The sign and magnitude of these regression parameters indicate the relationship of the covariate to survival. As stated earlier, the lower the force of mortality the more likely it is that an individual will survive. Thus, negative values of $\boldsymbol{\beta_i}$ indicate that the ith factor in the model is positively related to survival, while a positive value of $\boldsymbol{\beta_i}$ will increase the force of mortality and indicate a negative relationship to survival.

Like all models, model misspecification is a potential problem of the proportional hazards model. To test this, either a forward or backward step log-likelihood model is used to determine whether covariates should be included in the model or not.

5. RESULTS

While the core intention of this paper is the use of the Cox proportional hazard model to determine whether factors affect survival, it would be remiss if the results were limited to only the model. Subsequently the information gathered for the sample is dissected, tested and analysed to provide an insight into initial public offerings, the survival of initial public offerings and ultimately the factors which explain the survival of initial public offerings.

5.1 DESCRIPTIVE STATISTICS

Table 3 shows the descriptive statistics for the sample of initial public offerings used. It should be noted that while the majority of the statistics apply to the 154 firms in the sample, the lack of available financial data for 19 firms must also be acknowledged (reducing the sample for some characteristics to 135). It should be noted that because a dummy variable is used for some of the factors, the mean for these factors should be interpreted as the percentage of firms in the sample, for which this characteristic is present. This applies to the factors; the attachment of options to the offer, underwriter backing, the use of an auditor in the big 5 and the classification of the chairman as a non-executive.

The median age of firms in the sample is 3.5 years and the median size of the offering is $8 million indicating that the majority of initial public offerings in Australia are relatively young and small. It is also interesting to note that the percentage of ownership retention is around 50% and hence majority control of the company on average is retained by the original owners. While the type of offering does vary amongst the sample of the 154 firms, 22% have options attached to their shares to raise additional capital at a later date, while 76% use an underwriter and 56% have an auditor which is one of the big 5 accounting firms. The cost of issuing also appears to be relatively high as a percentage of offer proceeds, while the average firm has an internal rate of return of around 5.5% (E/P ratio) and a forecast dividend yield of 2.7%.

It is also interesting that the corporate governance factors do not all comply with the ASX recommendations for good governance. Consistent with Da Silva Rosa, Izan and Lin (2004) the majority of initial public offerings have less than the implied recommendation of a minimum number of 6 directors. The mean number of directors is 5 while only 25% of initial public offerings have more than the recommended 6 directors on the board. However, 67% do have a non-executive chairman and the majority of firms have a board which could be considered independent, on which the non-executive directors outnumber the executive directors on the board. While it is not compulsory for firms to follow the ASX best practice recommendations it is required that the company address each of the breaches in their annual report. This transparency means that for many initial public offerings the perceived benefits associated with corporate governance have been outweighed by the cost of compliance.

Another noticeable feature of the descriptive statistics is that for many of the factors there is a distinct difference between the mean and the median. Such a pronounced difference suggests that the collected data is skewed and not symmetric. The implications of this is that since the characteristics of the firms listing do not conform to a tight spread, it is possible that differences in these characteristics may have some explanatory power regarding the likelihood that a firm survives. When analysing the

characteristics of survivors and non-survivors both the difference in means and medians is tested (both are non-parametric tests) to ensure that this skew does not affect the results and conclusions about which factors influence survival (seen later).This leads onto the next step of the analysis; the survival of initial public offerings.

5.2 THE SURVIVAL OF INITIAL PUBLIC OFFERINGS

Diagram 1 shows the cumulative probability of survival of the 154 firms in the sample, from the time of issue (time 0) to time 7 (the time at which all observations still alive are censored), and a breakdown of deaths by year of age is shown in Table 4. The life table indicates that of the 154 firms in the sample 44 are classified as non-survivors by age 7 while 31 are classified as non-survivors by age 5. This corresponds to probabilities of 20% and 29% that a firm will effectively fail within 5 and 7 years of listing, respectively.

While the descriptive statistics for survivors and non-survivors at time 5 and time 7 are discussed in more detail later, the high failure rate observed for these Australian initial public offerings is not unusual when compared to previous research, and there is cause for argument that it is an improvement. The rate of failure compares favourably to the results of Lee, Taylor and Walter (1996) who found that 17% of Australian firms listed between 1976 and 1989 did not survive more than 3 years. For American firms listed between 1977 and 1990 Jain and Kini (1999) found that 31% of initial public offerings did not survive more than 5 years.

A breakdown of the sample by industry provides additional information about survival and also complements the descriptive statistics. From Table 5 it is evident that the sample covers 20 different industries. The statistics show that non-survivors are not evenly distributed among the industries, with 80% of real estate firms and two thirds of agricultural firms failing within 7 years. While this uneven distribution provides some support that industry is a factor which impacts on survival, the limitation in the interpretation of these statistics is the small sample size of each industry. These small sample sizes leads to the control for industry being limited to industries for which there are at least 10 firms. As a

result, the inclusion in the model of a natural resource, manufacturing, business services (Pers/Bus/Rep Svc), and financial (Commercial bank, Insurance, Investment Bank, Investment Fund, and Other Finance) industry variable is used to control for industry effects.

The reason why a firm is delisted is also of importance and a breakdown of non-survivors after 7 years by reason is shown in Table 6. It should be noted that half of the firms delisted were taken over. It is assumed that a takeover is considered an indicator of underperformance because the new management believe that they can better utilize the resources and increase the value of the acquired firm. This is supported by Trimbath, Frydman and Frydman (2001) who found that there is a positive relationship between the risk of takeover and cost inefficiencies. Apart from losing their corporate identity it has also been found that firms which merge experience declining stock prices prior to a merger (Welbourne and Andrews, 1996). Another interesting result is the fact that only 2 of the 44 firms were delisted due to voluntary reasons (entity's request and transfer to another exchange). Companies which are taken over, merge or delist voluntarily have either a potential upside, or return some money back to investors and allow incurred losses to be realised. However, it is likely that investors in firms which delist because of a failure to pay listing fees, are liquidated or are suspended from trading will incur far greater losses and these reasons account for the remaining 30% of the non-survivors. With the exception of the firms which delist voluntarily, underperformance of the remaining non-survivors is highly likely and as a result this emphasises the relevance of survival analysis.

It is also important to note that because more than 30 firms are classified as non-survivors by ages 5 and 7, this adds credibility to any comparisons made between survivors and non-survivors. A comparison of the descriptive statistics is the focus of the next section.

5.3 DIFFERENCES BETWEEN SUVIVORS AND NON-SURVIVORS

Tables 7 and 8 show the descriptive statistics of the firms classified as either survivors or non-survivors at times 5 and 7. However, in order to gain an insight into whether the factors listed affect survival, the differences between the two samples are of interest. As noted earlier the descriptive

statistics of the whole sample show a significant difference between the mean and the median for each of the factors, and it is this lack of conformity to a tight spread which indicates that the factors may influence survival. To test for differences in the characteristics of the two populations, a difference in mean and a difference in median test are conducted. Both tests are non-parametric and therefore do not rely on the assumption that both of the populations are normally distributed. The Kruskal Wallis test for difference in means detects differences in distribution location while the Median test, tests for differences in distribution location and distribution shape between the two samples (Webster, 1995). The results of these tests are presented in Tables 9, 10, 11 and 12 but they should be examined in conjunction with the descriptive statistics for survivors and non-survivors (Tables 7 and 8) to determine the nature of the significant differences.

The comparison of the survivors and non-survivors at time 5 yields significant results for the difference in means for offer price, the number of risk factors, the value of total assets and the leverage variable. At the same time, the difference in medians is found to be significant at the 10% level or better for the offer price, the issue costs variable, the earnings price ratio, number of risk factors, the value of total assets and the degree of leverage. Of the factors listed, those which are significant for both tests are of greater interest because the likelihood that they affect survival is greater.

While at time 5 the offer price variable is significant for both tests, the results are inconclusive about whether the variable affects survival. This is because while the difference in the mean offer price of the survivors and non-survivors is positive (consistent with the hypothesis that offer price is positively related to survival), the difference in medians is negative (contrary to the hypothesis that offer price is positively related to survival). The number of risk factors is also significant for both tests and the negative difference between the mean and median of survivors and non-survivors is consistent with the hypothesis that the number of risk factors listed in the prospectus is a legitimate measure of risk and hence has a negative influence on a firm's survival. It is also interesting to note that while the value of total assets is significant for both tests, the difference between the mean and median of survivors and non-survivors is negative. This result is contrary to the expectation that firm size should

have a positive affect on survival, suggesting instead that smaller firms are more likely to survive than larger firms. An examination of the leverage ratio of the survivors and non-survivors suggests that the mean and median level of long term debt is less for survivors than non-survivors, which is consistent with the hypothesis that high levels of debt act as a warning mechanism of potential bankruptcy (Platt, 1995).

The comparison between survivors and non-survivors at time 7 also finds that there is a significant difference between the mean and medians of the two groups for the number of risk factors, the value of total assets and the degree of leverage at the time of listing. Consistent with the results at time 5 the mean and median of non-survivors for the number of risk factors, the leverage ratio and firm size exceeds the corresponding statistics for the survivor group. Again, the results are consistent with the hypothesis that the number of risk factors listed in the prospectus is negatively related to survival. This is justified because riskier firms are more likely to suffer operational losses which over time will erode their asset base and financial resources. This result is also consistent with the relationship found by Hensler, Rutherford and Springer (1997) and Bhabra and Pettway (2003). It is also possible that a negative relationship exists between the level of long term debt and survival, which is consistent with the costs associated with financial distress, as well as the increased risks of bankruptcy. However, it is again found that contrary to expectations, firm size may be negatively related to survival. This result contradicts the hypothesis that larger firms have a greater asset base and thus are better able to weather tougher economic periods or recover from mistakes in strategy or direction.

These results provide evidence that the number of risk factors, the size of the firm (value of total assets), and the leverage of a firm provide a basis to distinguish between firms likely to survive for more than 5 or 7 years. It must be noted that of the 19 factors tested only 3 factors are found to be consistently different. The results should also be treated tentatively because they do not reflect all available information about the sample. For example, differences in industry have not been considered while no differentiation is made between a firm which lives for 4.5 years and 5 years (because both are included in the non-survivor group at time 5). The Cox proportional hazards model in the next section

will include an industry variable and will also take into account the order of death, and consequently should provide more definitive results about which factors affect survival.

5.4 FACTORS WHICH INFLUENCE SURVIVAL

The methodology of the Cox proportional hazards model has already been discussed in this paper and consequently this section will focus on the interpretation of the results. It should however be noted that because financial data was not available for 19 firms, this has reduced the sample tested using the model to 135 firms. It is not expected that this will have a drastic effect on the results, however is still must be acknowledged. As a relative indication of the effect on survival probabilities, 24 firms out of 135 die within 5 years (about 18%) and 36 die within 7 years (about 27%) compared to probabilities of 20% and 29% of failure within 5 and 7 years for the full sample of 154 firms.

The results of the Cox proportional hazards model are presented in Table 13 (with censoring of survivors occurring at time 5) and Table 14 (which censors survivors at time 7). The purpose of the two censoring times is to check the permanency of any factors found to be significant. Since model misspecification is a concern 4 models are shown in each of the tables. Model 1 represents the Cox proportional hazards model with 14 factors which are available in the prospectus at the time of listing. Model 2 adds industry variables to model for firms classified as belonging to the natural resource, finance, business services or manufacturing industries (the process of deciding which industries to include has been discussed in an earlier part of the paper). Model 3 includes the financial characteristics obtained from the first full set of annual reports. Model 4 is the model of best fit overall as determined by SPSS using a backward likelihood ratio technique to minimize the overall significance level of the model.

An examination of the overall significance of the models at ages 5 and 7 show that the inclusion of industry factors and the financial characteristics is justified. For the models where survivors are censored at time 7, the level of significance improves from over 35% (Model 1) to about 0.7% (Model 3) while for the models where survivors are censored at time 5 the overall significance improves from

78% (Model 1) to about 16%. However, the model of best fit (Model 4) for both censoring scenarios is far below the 1% level of significance. Such a low level of significance supports the credibility of the results of Model 4 and as a result it is the factors included in this model which are of most value.

Model 4 for the scenario in which survivors are censored at time 5 produces 4 factors which are significant at a 10% or lower level of significance, while the model of best fit for survivors censored at time 7 produces 7 factors considered significant. The size of the offering and the size of the firm (ln of total assets) and the industry variables; natural resource and finance are common to both.

As indicated by the negative value of the **B** coefficient and a relative hazard rate value of **exp(B)** being less than 1 the size of the offering is negatively related to the likelihood of failure. This relationship is consistent with the hypothesis that the size of the offering should be positively related to survival because larger offerings are a signal of market confidence. After all, it is harder to raise a large amount of capital for a company unless there is strong investor support. This is consistent with the findings of Hensler, Rutherford and Springer (1997).

It is also evident that firms classified as belonging to the natural resource or finance industries are more likely to survive than initial public offerings in other sectors. The result that natural resources are more likely to survive than other firms is supportive of the relevance of the mining industry in the Australian economy and the relationship between survival and performance. An examination of the post-issue performance of Australian industrial IPOs found evidence that they under-perform (Lee, Taylor and Walter, 1996), while it has been found that Australia mining IPOs consistently outperform the market (How, 2000). This implies that investors, for whom survival is important, should choose firms in the finance or mining industry.

The number of risk factors listed in the prospectus was foreshadowed by the difference in means and medians tests as being a factor which impacts on survival. Thus the indication that it is a significant factor in the proportional hazards model is not surprising. Consistent with expectations, the number of

risk factors is negatively related to survival, and this supports the notion that the number of risk factors is a worthy proxy for the risk of a firm. Firms with a bigger list of risk factors are more likely to incur operational losses over time, which will erode the value of the firm and lead to the firm's eventual demise. The high information value of the risk factor section in the prospectus is consistent with the finding for American IPOs of Hensler, Rutherford and Springer (1997) and Bhabra and Pettway (2003).

Dividend yield is also found to be strongly positively related to survival. The fact that it is significant in the model which censors survivors after 7 years, and not in the model which censors survivors after 5 years, may enhance the value of the factor as an indicator of long term survival. If a firm forecasts to pay a dividend in its first year this means that it is making a profit from the beginning of its publicly traded life. However, it may also mean that because the firm is established and stable there is a limited amount of growth opportunities. In terms of minimizing risk, profitability and stability are favourable characteristics. Therefore, the evidence presented here strongly suggests that the forecast dividend yield of an initial public offering provides valuable information.

It is also worth noting that contrary to expectations, underwriter backing is negatively related to the survival of IPOs. The negative relationship between the use of an underwriter and survival should be treated carefully because it may be explained by the inability of the variable to differentiate between a reputable underwriter and not so reputable underwriters.

The negative relationship between the value of total assets and survival is also contrary to expectations; however the result was foreshadowed during the difference in means and medians tests. The difference in mean and median tests were both non-parametric and do not rely on the assumption that both of the populations are normally distributed. Combining the tests, essentially tests for differences in the distribution location and distribution shape between the two samples. Both tests found that a significant negative difference exists between the mean and median value of total assets of survivors and non-survivors, at times 5 and 7. Subsequently, the robustness of the negative

relationship between firm size and survival is confirmed by the results of the Cox proportional hazards model.

The results of the survival analysis indicate that some of the information available at the time of listing is valuable to investors concerned with the duration of their investment. However, the implications to the decisions of owners and management of factors which are not significant should also be considered. For example, such factors as the age of the firm at offering, the attachment of options, ownership retained and the board composition characteristics are found to have an insignificant effect on survival. This suggests that there is no optimal age to list, offer structure, ownership structure, or corporate structure to ensure survival.

6. CONCLUSION

In this study, the survival of Australian IPOs which lodged prospectuses in 1995, 1996, or 1997 is examined. It is found that there is high failure rate among Australian IPOs with 20% and 29% of firms delisting within 5 and 7 years of the date of issue. The majority of firms delist for reasons associated with under-performance and this strengthens the intuitive relationship between survival and performance.

The value of the information available close to or at the time of listing is tested using the Cox proportional hazards survival model. The results suggest that the size of the offering and the forecast dividend yield are positively related to survival, while the number of risk factors listed in the prospectus is negatively related to survival. Firms in the finance or natural resource industries are also more likely to survive than other firms. There is also some evidence to suggest that contrary to expectations, the size of the firm (as measured by total assets) and the use of an underwriter are negatively related to survival. However, further research is needed to explain why firms with a lot of assets are more likely to fail. Meanwhile, the distinction between underwriters based on reputation may also be helpful in explaining the result.

The main hypothesis that information available prior to, or at the time of listing does not affect the relative mortality of Australian IPOs, is rejected based on these results of significance. However, it must be noted that many of the factors relating to firm characteristics, offer characteristics, financial characteristics and corporate governance characteristics were found to have no significant impact on survival.

The implications of these results to investors are that they should invest in firms which have a low number of risk factors, a large offer size, a forecast dividend yield for the first full year after issue and which are either in the finance or natural resource industries. Based on this choice it is suggested that the survival criteria of the buy and hold investment strategy should be met. While survival and performance are related, the nature of the relationship can be investigated further. An examination of the adjusted buy and hold returns after 5 years and 7 years for survivors and non-survivors would serve as a worthy complement to this paper. It would also be interesting to determine whether the factors found to affect survival also affect investment returns.

The implications of the results of this paper are important for owners and managers. Factors such as age of the firm at offering, the level of retained ownership, the attachment of options, the number of directors, the use of a non-executive chairman and the independence of the board of directors, are all found to have an insignificant impact on survival. This suggests that there is no optimal age to list, offer structure, ownership structure, or corporate structure to ensure survival.

It would be imprudent to declare that after taking note of the size of the offering, the size of the firm, the industry of the firm, the forecast dividend yield and the number of risk factors, the investor should dispose of the prospectus. Further research, testing and an expanded sample size may yield a robust confirmation of this conclusion.

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TABLE 1
The Expected Relationship of Survival with Time Independent Factors

Factor	Expected relationship to survival
Age at Offering	+
Offer Price	+
Size of the Offering	+
Ownership Retained	+
Attachment of Options to the Offer	-
Underwriter Backing	+
Issue Costs as a Percentage of the Offer Proceeds	-
Auditor in the Big 5	+
Earnings to Price Ratio	-
Forecast Dividend Yield	+
Number of Risk Factors in the Prospectus	-
Non-Executive Chairman	+
Number of Directors (Including Chairman)	+
Percentage of Independent Directors	+
Industry	?
Leverage	-
Profitability	+
Size of the Firm (Total Assets)	+
Tangibility of Assets	+
Total Asset Turnover	+

TABLE 2
Definitions of factors used

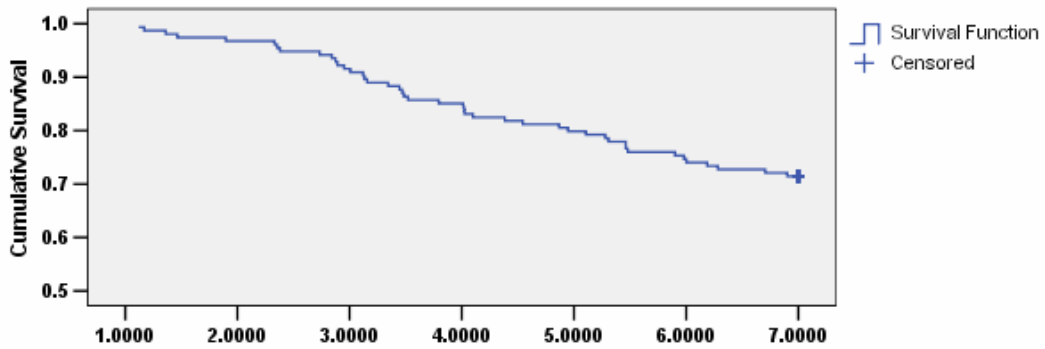
Factor	Definition
Age at Offering	The difference between the year in which the prospectus was lodged and the year in which the company was founded.
Offer Price	The offer price listed in the prospectus, or the midpoint of the price range.
Size of the Offering	The size of the offering listed in the prospectus, or the minimum subscription amount.
Ownership Retained	The difference between the market capitalization of the company after listing and the size of the offering, divided by the market capitalization of the company after listing.
Attachment of Options to the Offer = 1	A value of 1 was attributed to offerings which had options attached, and a value of 0 otherwise.
Underwriter Backing = 1	Initial public offerings which had an underwriter recorded a value of 1 and a value of 0 otherwise.
Issue Costs as a Percentage of the Offer Proceeds	The ratio of the issue costs of the offering to the size of the offering.
Auditor in the Big 5 = 1	Initial public offerings which had an auditor belonging to one of the Big 5 Accounting firms recorded a value of 1, and a value of 0 otherwise.
Earnings to Price Ratio	The ratio of the forecast first full year earnings to the offer price.
Forecast Dividend Yield	The ratio of the forecast first full year dividends to the offer price.
Number of Risk Factors in the Prospectus	The number of risk factors listed in the prospectus.
Non-Executive Chairman = 1	If the Chairman listed in the prospectus is a non-executive director then a value of 1 is recorded, and a value of 0 otherwise.
Number of Directors (Including Chairman)	The number of directors (including the Chairman) listed in the prospectus.
Percentage of Independent Directors	The ratio of the number of non-executive directors to the number of directors, as listed in the prospectus.
Industry	The industry of the IPO according to the SDC database.
Leverage	The ratio of Long Term Debt to Total Assets for the first available full year results after listing. Taken from Aspect Huntley Financial Analysis.
Profitability	The ratio of EBIT to Total Assets for the first available full year results after listing. Taken from Aspect Huntley Financial Analysis.
Size of the Firm (Total Assets)	The total assets of the firm according to the first available full year results after listing. Taken from Aspect Huntley Financial Analysis.
Tangibility of Assets	The ratio of the value of Plant, Property and Equipment to Total Assets according to the first available full year results after listing. Taken from Aspect Huntley Fin Analysis.
Total Asset Turnover	The ratio of Total Revenue to Total Assets for the first available full year results after listing. Taken from Aspect Huntley Financial Analysis.

TABLE 3. Descriptive Statistics

Variables	N Valid	N Missing	Mean	Median	Minimum	Maximum	Percentiles 25	Percentiles 50	Percentiles 75
Age at Offering	154	0	15.0130	3.5000	.0000	157.0000	1.0000	3.5000	14.0000
Offer Price	154	0	$4.25	$.50	$.20	$500.00	$.25	$.50	$1.20
Size of Offering	154	0	$179007818	$8,000,000.00	$1000000	$14,582,146,892	$4000000	$8,000,000.00	$47,150,000.00
ln (Size of Offering)	154	0	$16.4771	$15.8950	$13.8155	$23.4031	$15.2018	$15.8950	$17.6683
Ownership Retained	154	0	.4957	.5078	.0000	.9952	.3518	.5078	.6776
Attachment of Options to the Offer = 1	154	0[a]	.22[a]	.00	0	1	.00	.00	.00
Underwriter Backing = 1	154	0	.76[a]	1.00	0	1	1.00	1.00	1.00
Issue Costs as a Percentage of the Offer Proceeds	154	0	.0914	.0781	.0000	.7302	.0439	.0781	.1058
Auditor in the Big 5 = 1	154	0	.56[a]	1.00	0	1	.00	1.00	1.00
Earnings to Price Ratio	154	0	.0546	.0340	-.1200	.2340	.0000	.0340	.1093
Forecast Dividend Yield	154	0	.0274	.0000	.0000	.1400	.0000	.0000	.0549
Number of Risk Factors in the Prospectus	154	0	11.38	11.00	0	30	7.00	11.00	14.00
Non-Executive Chairman =1	154	0	.67[a]	1.00	0	1	.00	1.00	1.00
Number of Directors (including Chairman)	154	0	5.11	5.00	3	12	4.00	5.00	6.00
Percentage of Independent Directors	154	0	.5636	.6000	.0000	1.0000	.4821	.6000	.7500
Leverage	135	19	.0763	.0074	.0000	.6482	.0000	.0074	.0788
Profitability	135	19	-.0168	.0000	-1.4062	.5088	-.0503	.0000	.0597
Size of the Firm (Total Assets)	135	19	$649905865	$24180000.00	$340,000	$32,966,000,000	$7098909	$24,180,000.00	$128853000.00
ln (Total Assets)	135	19	$17.3312	$17.0010	$12.7367	$24.2187	$15.7755	$17.0010	$18.6742
Tangibility of Assets	135	19	.2336	.1142	.0000	.9712	.0160	.1142	.3531
Total Asset Turnover	135	19	.5006	.1195	.0000	8.1638	.0154	.1195	.4767

a. The mean should be interpreted as the percentage of firms in the sample for which this characteristic is present

DIAGRAM 1. Survival Function



This diagram shows the proportion of IPOs in the sample (issued at time 0) which survive to a time in the future (where the time in the future takes a maximum value of 7 years). The table below gives a breakdown of survival by year since the date of issue. It details the proportion of IPOs which survive from the start of each year to the end of each year as well as the proportion of IPOs which have survived since time 0.

TABLE 4. Life Table

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cumulative Proportion Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
0	154	0	154.000	0	.00	1.00	1.00	.00	.000	.000	.00	.00
1	154	0	154.000	5	.03	.97	.97	.01	.032	.014	.03	.01
2	149	0	149.000	8	.05	.95	.92	.02	.052	.018	.06	.02
3	141	0	141.000	10	.07	.93	.85	.03	.065	.020	.07	.02
4	131	0	131.000	8	.06	.94	.80	.03	.052	.018	.06	.02
5	123	0	123.000	8	.07	.93	.75	.04	.052	.018	.07	.02
6	115	0	115.000	5	.04	.96	.71	.04	.032	.014	.04	.02

TABLE 5. Status at Time 7: Breakdown by Industry

		Status at Time 7					
		Survivor		Non-Survivor		Total	
		Count	% within Industry	Count	% within Industry	Count	% within Industry
Industry	Agriculture	1	33.3%	2	66.7%	3	100.0%
	Commercial Bank	1	50.0%	1	50.0%	2	100.0%
	Construction	5	71.4%	2	28.6%	7	100.0%
	Gas Distribution	1	100.0%	0	.0%	1	100.0%
	Healthcare	1	50.0%	1	50.0%	2	100.0%
	Insurance	0	.0%	1	100.0%	1	100.0%
	Investment Bank	4	100.0%	0	.0%	4	100.0%
	Investment Fund	2	100.0%	0	.0%	2	100.0%
	Leisure	4	57.1%	3	42.9%	7	100.0%
	Manufacturing	11	68.8%	5	31.3%	16	100.0%
	Natural Resource	51	83.6%	10	16.4%	61	100.0%
	Other Finance	6	60.0%	4	40.0%	10	100.0%
	Pers/Bus/Rep Svc	9	75.0%	3	25.0%	12	100.0%
	Radio/TV/Telecom	1	50.0%	1	50.0%	2	100.0%
	Real Estate	1	20.0%	4	80.0%	5	100.0%
	Restaurant/Hotel	2	50.0%	2	50.0%	4	100.0%
	Retail	4	100.0%	0	.0%	4	100.0%
	Telephone Commun	2	40.0%	3	60.0%	5	100.0%
	Transportation	3	75.0%	1	25.0%	4	100.0%
	Wholesale	1	50.0%	1	50.0%	2	100.0%
Total		110	71.4%	44	28.6%	154	100.0%

TABLE 6. Non-Survivors at Time 7: Reasons for Delisting

		Frequency	Percent	Valid Percent	Cumulative Percent
	Entity's Request	1	2.3	2.3	2.3
	Failure to pay listing fees	4	9.1	9.1	11.4
	Liquidation	2	4.5	4.5	15.9
	Merger	7	15.9	15.9	31.8
	Suspended	7	15.9	15.9	47.7
	Takeover	22	50.0	50.0	97.7
	Transfer to another exchange	1	2.3	2.3	100.0
	Total	44	100.0	100.0	

TABLE 7. Descriptive Statistics at Time 5: Survivors vs Non-Survivors

	Status at Time 5								
	Survivors			Non-Survivors			Total		
Variables	N	Mean	Median	N	Mean	Median	N	Mean	Median
Age at Offering	123	14.3902	4.0000	31	17.4839	2.0000	154	15.0130	3.5000
Offer Price	123	$4.86	$.50	31	$1.83	$1.00	154	$4.25	$.50
Size of Offering	123	$212,228,146.64	$8,000,000.00	31	$47,198,129.01	$10,120,000.00	154	$179,007,818.41	$8,000,000.00
ln (Size of Offering)	123	$16.4650	$15.8950	31	$16.5251	$16.1300	154	$16.4771	$15.8950
Ownership Retained	123	.4814	.5056	31	.5522	.5867	154	.4957	.5078
Attachment of Options to the Offer = 1	123	.2358	.0000	31	.1613	.0000	154	.2208	.0000
Underwriter Backing = 1	123	.7480	1.0000	31	.8065	1.0000	154	.7597	1.0000
Issue Costs as a Percentage of the Offer Proceeds	123	.0893	.0816	31	.0995	.0600	154	.0914	.0781
Auditor in the Big 5 = 1	123	.5528	1.0000	31	.6129	1.0000	154	.5649	1.0000
Earnings to Price Ratio	123	.0526	.0000	31	.0625	.0500	154	.0546	.0340
Forecast Dividend Yield	123	.0270	.0000	31	.0294	.0250	154	.0274	.0000
Number of Risk Factors in the Prospectus	123	10.93	10.00	31	13.13	12.00	154	11.38	11.00
Non-Executive Chairman = 1	123	.6667	1.0000	31	.6774	1.0000	154	.6688	1.0000
Number of Directors (including Chairman)	123	5.0488	5.0000	31	5.3548	5.0000	154	5.1104	5.0000
Percentage of Independent Directors	123	.5764	.6000	31	.5130	.6000	154	.5636	.6000
Leverage	111	.0689	.0007	24	.1107	.0404	135	.0763	.0074
Profitability	111	-.0215	.0000	24	.0046	.0103	135	-.0168	.0000
Size of the Firm (Total Assets)	111	$461,437,098.16	$18,882,000.00	24	$1521573911.63	$54,567,500.00	135	$649,905,865.00	$24,180,000.00
ln (Total Assets)	111	17.1737	16.7537	24	18.0597	17.7637	135	17.3312	17.0010
Tangibility of Assets	111	.2350	.1044	24	.2273	.1563	135	.2336	.1142
Total Asset Turnover	111	.4707	.1183	24	.6392	.1736	135	.5006	.1195

TABLE 8. Descriptive Statistics at Time 7: Survivors vs Non-Survivors

	Status At Time 7								
	Survivors			Non-Survivors			Total		
Variables	N	Mean	Median	N	Mean	Median	N	Mean	Median
Age at Offering	110	15.0273	4.0000	44	14.9773	2.0000	154	15.0130	3.5000
Offer Price	110	$5.35	$.50	44	$1.49	$1.00	154	$4.25	$.50
Size of Offering	110	$232,153,299.86	$8,000,000.00	44	$46,144,114.79	$10000000.00	154	$179,007,818.41	$8,000,000.00
ln (Size of Offering)	110	$16.4894	$15.8950	44	$16.4463	$16.1181	154	$16.4771	$15.8950
Ownership Retained	110	.4738	.5022	44	.5502	.5677	154	.4957	.5078
Attachment of Options to the Offer = 1	110	.2455	.0000	44	.1591	.0000	154	.2208	.0000
Underwriter Backing = 1	110	.7364	1.0000	44	.8182	1.0000	154	.7597	1.0000
Issue Costs as a Percentage of the Offer Proceeds	110	.0895	.0808	44	.0961	.0678	154	.0914	.0781
Auditor in the Big 5 = 1	110	.5636	1.0000	44	.5682	1.0000	154	.5649	1.0000
Earnings to Price Ratio	110	.0536	.0000	44	.0572	.0498	154	.0546	.0340
Forecast Dividend Yield	110	.0280	.0000	44	.0261	.0000	154	.0274	.0000
Number of Risk Factors in the Prospectus	110	10.58	10.00	44	13.36	12.50	154	11.38	11.00
Non-Executive Chairman =1	110	.6727	1.0000	44	.6591	1.0000	154	.6688	1.0000
Number of Directors (including Chairman)	110	5.0636	5.0000	44	5.2273	5.0000	154	5.1104	5.0000
Percentage of Independent Directors	110	.5813	.6000	44	.5195	.6000	154	.5636	.6000
Leverage	99	.0657	.0000	36	.1057	.0268	135	.0763	.0074
Profitability	99	-.0194	.0000	36	-.0097	.0015	135	-.0168	.0000
Size of the Firm (Total Assets)	99	$502,836,555.13	$18400000.00	36	$1054346467.14	$37367500.00	135	$649,905,865.00	$24180000.00
ln (Total Assets)	99	$17.1523	$16.7279	36	$17.8231	$17.4363	135	$17.3312	$17.0010
Tangibility of Assets	99	.2373	.1044	36	.2236	.1193	135	.2336	.1142
Total Asset Turnover	99	.4971	.1098	36	.5102	.2214	135	.5006	.1195

TABLE 9. Kruskal-Wallis Diffference in Means at Time 5: Survivors vs Non-Survivors[a]

		Chi-Square	df	Asymp. Sig.
	Age at Offering	.170	1	.680
	Offer Price	5.255	1	.022
	Size of Offering	.222	1	.638
	Ownership Retained	1.691	1	.193
	Attachment of Options to the Offer = 1	.793	1	.373
	Underwriter Backing = 1	.461	1	.497
	Issue Costs as a Percentage of the Offer Proceeds	1.726	1	.189
	Auditor in the Big 5 = 1	.361	1	.548
	Earnings to Price Ratio	1.150	1	.284
	Forecast Dividend Yield	.448	1	.503
	Number of Risk Factors in the Prospectus	3.282	1	.070
	Non-Executive Chairman = 1	.013	1	.910
	Number of Directors (including Chairman)	1.127	1	.288
	Percentage of Independent Directors	.472	1	.492
	Leverage	4.755	1	.029
	Profitability	.140	1	.708
	Size of the Firm (Total Assets)	4.388	1	.036
	Tangibility of Assets	.005	1	.945
	Total Asset Turnover	1.448	1	.229

a. Kruskal Wallis Test

TABLE 10. Medians Test for Difference in Medians at Time 5: Survivors vs Non-Survivors

		N	Median	Chi-Square	df	Asymp. Sig.
	Age at Offering	154	3.50	.040	1	.841
	Offer Price	154	$.5000	4.559	1	.033
	Size of Offering	154	$8000000	1.362	1	.243
	Ownership Retained	154	.508	.040	1	.841
	Attachment of Options to the Offer = 1	154	.00	.798	1	.372
	Underwriter Backing = 1	154	1.00[a]			
	Issue Costs as a Percentage of the Offer Proceeds	154	.0781	4.887	1	.027
	Auditor in the Big 5 = 1	154	1.00[a]			
	Earnings to Price Ratio	154	.0340	4.887	1	.027
	Forecast Dividend Yield	154	.0000	1.215	1	.270
	Number of Risk Factors in the Prospectus	154	11.0000	6.098	1	.014
	Non-Executive Chairman = 1	154	1.00[a]			
	Number of Directors (including Chairman)	154	5.00	1.029	1	.310
	Percentage of Independent Directors	154	.6000	.002	1	.964
	Leverage	135	.0074	5.250	1	.022
	Profitability	135	.0000	.240	1	.624
	Size of the Firm (Total Assets)	135	24180000	3.389	1	.066
	Tangibility of Assets	135	.1142	.240	1	.624
	Total Asset Turnover	135	.1195	.240	1	.624

a. All values are less than or equal to the median. Median Test cannot be performed.

TABLE 11. Kruskal-Wallis Difference in Means[a] at Time 7: Survivors vs Non-Survivors

		Chi-Square	df	Asymp. Sig.
	Age at Offering	1.552	1	.213
	Offer Price	2.436	1	.119
	Size of Offering	.018	1	.893
	Ownership Retained	2.416	1	.120
	Attachment of Options to the Offer = 1	1.354	1	.245
	Underwriter Backing = 1	1.145	1	.285
	Issue Costs as a Percentage of the Offer Proceeds	.501	1	.479
	Auditor in the Big 5 = 1	.003	1	.959
	Earnings to Price Ratio	.365	1	.545
	Forecast Dividend Yield	.024	1	.877
	Number of Risk Factors in the Prospectus	7.566	1	.006
	Non-Executive Chairman = 1	.026	1	.871
	Number of Directors (including Chairman)	.947	1	.330
	Percentage of Independent Directors	1.293	1	.256
	Leverage	4.191	1	.041
	Profitability	.062	1	.804
	Size of the Firm (Total Assets)	3.556	1	.059
	Tangibility of Assets	.022	1	.881
	Total Asset Turnover	.962	1	.327

a. Kruskal Wallis Test

TABLE 12. Median Test for Difference in Medians at Time 7: Survivors vs Non-Survivors

		N	Median (whole sample)	Chi-Square	df	Asymp. Sig.
	Age at Offering	154	3.50	2.036	1	.154
	Offer Price	154	$.5000	2.190	1	.139
	Size of Offering	154	$8,000,000.00	.842	1	.359
	Ownership Retained	154	.508	1.145	1	.285
	Attachment of Options to the Offer = 1	154	.00	1.363	1	.243
	Underwriter Backing = 1	154	1.00[a]			
	Issue Costs as a Percentage of the Offer Proceeds	154	.0781	1.145	1	.285
	Auditor in the Big 5 = 1	154	1.00[a]			
	Earnings to Price Ratio	154	.0340	3.182	1	.074
	Forecast Dividend Yield	154	.0000	.597	1	.440
	Number of Risk Factors in the Prospectus	154	11.00	13.612	1	.000
	Non-Executive Chairman = 1	154	1.00[a]			
	Number of Directors (including Chairman)	154	5.00	.775	1	.379
	Percentage of Independent Directors	154	.600	.948	1	.330
	Leverage	135	.0074	3.993	1	.046
	Profitability	135	.0000	.003	1	.959
	Size of the Firm (Total Assets)	135	24180000	2.589	1	.108
	Tangibility of Assets	135	.1142	.003	1	.959
	Total Asset Turnover	135	.1195	1.488	1	.223

a. All values are less than or equal to the median. Median Test cannot be performed.

TABLE 13. Cox Proportional Hazards Model with Censoring at Time 5: Factors which Impact on Survival

A value of the coefficient **B** which is negative reduces the hazard rate and indicates that the factor is positivel related to survival, while a positive value of **B** indicates that the factor is negatively related to survival. The relative hazard rate value is represented by Exp(B). Alternatively an **Exp(B)** which is less than 1 indicates that the factor is positively related to the likelihood of survival, while an **Exp(B)** which is greater than 1 indicates a negative relationship to survival.

	Model 1			Model 2			Model 3			Model 4		
Variables	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**
Age at Offering	0.0032	0.7392	1.0032	-0.0002	0.9794	0.9998	-0.0036	0.7299	0.9964			
Offer Price	-0.0084	0.8160	0.9917	-0.0098	0.8374	0.9903	-0.0105	0.8159	0.9896			
ln (Size of Offering)	-0.0327	0.8637	0.9678	-0.1587	0.4636	0.8532	-0.9046	0.0279	0.4047	-0.4078	0.0310	0.6651
Ownership Retained	0.9168	0.4035	2.5012	0.0938	0.9324	1.0984	-1.2788	0.3347	0.2784			
Attachment of Options to the Offer = 1	-0.6884	0.3059	0.5024	-0.3576	0.6198	0.6994	-0.5639	0.4720	0.5690			
Underwriter Backing = 1	0.8568	0.1814	2.3556	1.1131	0.1026	3.0439	1.0801	0.1262	2.9451			
Issue Costs as a Percentage of the Offer Proceeds	0.9298	0.6995	2.5339	-0.5383	0.8474	0.5837	-4.0958	0.2560	0.0166			
Auditor in the Big 5 = 1	0.1083	0.8115	1.1143	0.1110	0.8157	1.1174	-0.0943	0.8672	0.9100			
Earnings to Price Ratio	0.6784	0.8854	1.9707	-2.1881	0.6277	0.1121	-2.6335	0.6181	0.0718			
Forecast Dividend Yield	1.7411	0.8318	5.7035	-4.6043	0.5901	0.0100	-5.6460	0.5439	0.0035			
Number of Risk Factors in the Prospectus	0.0375	0.4154	1.0382	0.0276	0.5428	1.0280	-0.0124	0.7992	0.9876			
Non Executive Chairman = 1	0.5409	0.3279	1.7176	0.5244	0.3582	1.6894	0.5903	0.3223	1.8044			
Number of Directors (including Chairman)	0.0837	0.6434	1.0873	0.0799	0.6869	1.0832	0.0012	0.9956	1.0012			
Percentage of Independent Directors	-0.9731	0.3596	0.3779	-1.0356	0.3458	0.3550	-0.8401	0.4669	0.4317			
BusinessServices				-0.5578	0.4903	0.5725	0.0349	0.9678	1.0355			
Finance				-0.9175	0.2773	0.3995	-2.3757	0.0510	0.0929	-1.3230	0.1088	0.2663
Manufacturing				-0.5475	0.4551	0.5784	-0.4483	0.5577	0.6387			
Natural Resource				-2.3150	0.0040	0.0988	-2.1593	0.0107	0.1154	-1.2441	0.0613	0.2882
Leverage							-0.4314	0.8323	0.6496			
Profitability							-1.2924	0.4501	0.2746			
ln (Total Assets)							0.8825	0.0197	2.4170	0.4640	0.0272	1.5904
Tangibility of Assets							-0.4433	0.6463	0.6419			
Total Asset Turnover							-0.2117	0.3957	0.8092			

Overall Score	**Model 1**	**Model 2**	**Model 3**	**Model 4**
- 2 Log Likelihood	221.0153	210.7144	203.4142	215.2914
Chi Square.	9.6822	20.3642	29.7489	15.0045
df.	14.0000	18.0000	23.0000	4.0000
Sig	0.7850	0.3127	0.1567	0.0047

TABLE 14. Cox Proportional Hazards Model with Censoring at Time 7: Factors which Impact on Survival

A value of the coefficient **B** which is negative reduces the hazard rate and indicates that the factor is positivel related to survival, while a positive value of **B** indicates that the factor is negatively related to survival. The relative hazard rate value is represented by Exp(B). Alternatively an **Exp(B)** which is less than 1 indicates that the factor is positively related to the likelihood of survival, while an **Exp(B)** which is greater than 1 indicates a negative relationship to survival.

	Model 1			Model 2			Model 3			Model 4		
Variables	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**	**B**	**Sig.**	**Exp(B)**
Age at Offering	0.0033	0.7066	1.0033	-0.0008	0.9303	0.9992	-0.0020	0.7830	0.9980			
Offer Price	-0.0107	0.8162	0.9893	-0.0132	0.8596	0.9869	-0.0140	0.8000	0.9860			
ln (Size of Offering)	-0.0678	0.6746	0.9345	-0.1620	0.3816	0.8504	-0.9440	0.0060	0.3890	-0.4245	0.0059	0.6541
Ownership Retained	1.2085	0.1863	3.3483	0.5449	0.5585	1.7245	-0.8560	0.4320	0.4250			
Attachment of Options to the Offering = 1	-0.6580	0.2176	0.5179	-0.5751	0.3112	0.5627	-0.7840	0.2010	0.4570			
Underwriter Backing = 1	0.7872	0.1180	2.1972	0.9628	0.0738	2.6189	0.9150	0.1060	2.4970	0.8428	0.0914	2.3229
Issue Costs as a Percentage of the Offer Proceeds	-0.1770	0.9374	0.8378	-1.4477	0.5838	0.2351	-5.3740	0.1010	0.0050			
Auditor in the Big 5 = 1	0.0719	0.8440	1.0746	0.0277	0.9421	1.0281	-0.4240	0.3570	0.6540			
Earnings to Price Ratio	0.9921	0.7980	2.6970	-1.5341	0.6842	0.2157	-0.7070	0.8710	0.4930			
Forecast Dividend Yield	-1.5523	0.8213	0.2118	-6.4883	0.3618	0.0015	-10.9000	0.1690	0.0000	-9.4857	0.0689	0.0001
Number of Risk Factors in the Prospectus	0.0734	0.0327	1.0761	0.0675	0.0596	1.0698	0.0250	0.4960	1.0260	0.0534	0.0722	1.0549
Non Executive Chairman = 1	0.2794	0.5258	1.3223	0.3425	0.4520	1.4085	0.4850	0.3120	1.6240			
Number of Directors (including Chairman)	0.0272	0.8558	1.0275	0.0208	0.8984	1.0210	-0.0730	0.6820	0.9300			
Percentage of Independent Directors	-0.5361	0.5250	0.5850	-0.6880	0.4191	0.5026	-0.6150	0.4950	0.5410			
BusinessServices				-0.7366	0.3065	0.4787	-0.2530	0.7450	0.7760			
Finance				-0.8000	0.2617	0.4493	-2.0450	0.0360	0.1290	-1.1742	0.0821	0.3091
Manufacturing				-0.3671	0.5399	0.6927	-0.3080	0.6250	0.7350			
NaturalResource				-1.6854	0.0047	0.1854	-1.6010	0.0120	0.2020	-1.0966	0.0257	0.3340
Leverage							0.6720	0.6920	1.9590			
Profitability							-1.3130	0.3430	0.2690			
ln (Total Assets)							0.9220	0.0040	2.5140	0.4455	0.0108	1.5613
Tangibility							-0.3600	0.6390	0.6970			
Total Asset Turnover							-0.2910	0.2160	0.7480			

Overall Score	**Model 1**	**Model 2**	**Model 3**	**Model 4**
- 2 Log Likelihood	327.6303	318.1802	305.1097	317.5125
Chi Square.	15.4047	25.7813	42.7957	28.1847
df.	14.0000	18.0000	23.0000	7.0000
Sig	0.3511	0.1049	0.0073	0.0002