Factors That Determine Firm Performance of New Zealand Listed Companies

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Abstract

This study examines the determinants of firm performance of New Zealand listed companies over the period of 1996-2007 during which one recession occurred. I explore a number of performance proxies such as Return on Assets (ROA), economic profit (EP) and Tobin's Q in relation to firm characteristics to see what factors determine firm performance. In addition I examine the question of whether the importance of these factors changes depending on the state of the economy. The regression model encompassed eight key factors that have been found to have the most impact on the operating performance of the companies in other markets. These factors are; intangibles, corporate governance, cash on hand, leverage, firm specific risk, size, growth and tangibility. The results have supported previous studies' findings to some extent, with size being the most important factor determining firm performance, followed by growth and leverage with the weaker relationships. Other factors appeared to be marginally related to the operating performance at different significance levels.

Introduction

Previous financial literature has not yet come to a definitive conclusion as to what firm or industry factors determine or affect firm performance during any state of the economy (Rumelt, 1991). Several research papers such as Altman (1968), and Ohlson (1980) developed different bankruptcy prediction models that tried to determine factors that influenced firm performance during various economic times. Many studies (Hawawini, Subramanian, and Verdin, 2003) argue that industry or external firm factors play a more important role in dictating the influence of firm performance. On the other hand, other studies (Opler and Titman, 1994) suggest that firm specific (internal) factors seem to be the major determinants of the operating performance, and are the main drivers for competitive advantage which is crucial for surviving economic downturns.

In this study I examine eight firm factors, namely intangibles, corporate governance, cash on hand, leverage, firm specific risk, size, growth and tangibility in relation to their influence on a firm performance. The sample size encompasses seventy six New Zealand listed companies during the period of 1996-2007. The number of observations is 571 including recessionary period of 1997-1998 and expansionary period of 1999-2007. The contribution of this study to earlier research papers is to determine whether the New Zealand financial market's performance response to earlier described factors differs to previous literature conducted in relation to other financial markets.

In this study, I investigate the importance of firm specific factors using three alternative measures of firm operating performance; Return on Assets, Economic Profit and Tobin's Q. Economic Profit (EP) reflects firm operating performance in a given year that is being adjusted for capital costs which implies risk and time value of money, while Tobin's Q reflects investors' confidence and the market's behaviour related to the firm's future cashflows. I test these two value based approaches of operating performance in addition to accounting measure Return on Assets. Having different operating performance measures gives an opportunity to compare the findings and look for any resulting similarities or differences. In other words, it provides the readers and future researchers with a perspective on how different operating performance measures are being influenced by the various firm factors.

My results support some of the previous research papers' results, having size as the most important determinant of firm performance and other factors having marginal relationships due to various reasons surrounding the New Zealand financial market during the sample period.

The layout of the study is structured as follows; section 2 presents an extensive literature review, section 3 introduces the data and methodology, section 4 reports the findings, section 5 summarises the conclusions.

Literature Review

Financial distress is the situation where a company cannot honour its debt repayments. The probability of experiencing financial distress has several causes including holding illiquid assets (assets that can not be converted into cash within twelve months), high fixed costs and others (Taffler, 1982). However, a large percentage of bankruptcies occur during recessionary periods as money becomes tight and sales decline. In economic downturns this could become an issue as revenues decline and the company's cashflow become uncertain whereas interest payments remain fixed (Opler and Titman, 1994). Recessions also make it harder for firms to get additional financing due to the increased risk of bankruptcy and decreased percentage of deposits as people feel less wealthy and do not invest as easily. As a result, management may forgo profitable investments in order to satisfy its short term debt obligations. This forgoing of profitable investments has the added consequence of reducing firm value, in essence diverting value from investors to creditors (Kahneman and Tversky, 1979). In this case, the uncertainty of the firm's operating performance has reduced the returns investors can expect to receive as a result of management's failure to ensure the company is capable of surviving a recession (Kahneman and Tversky, 1979).

Financial economists have studied and researched for years how financial distress may affect the firms' performance in the short and long run during different economic conditions (Opler and Titman, 1994). Financial distress has always been portrayed as a costly procedure that is directly associated with the firm's survival especially in the hard economic times (Taffler, 1982). Financial distress is seen as a harmful event for creditors, employees, suppliers and customers, implying harder access to capital (Altman, 1968). In addition, competitors might react promptly to a firm's weakening position and seize a larger market share (Opler and Titman, 1994). Previous literature suggests that financial distress causes some major losses and greatly affects the value maximising decisions made by company's top management (Titman and Wessel, 1988).

Given the losses resulting from financial distress, it is important that both investors and management have some way of predicting firm performance in times of hardship as well as periods of expansion. This is important for management because they might oversee and prevent financial distress situations that may eventually lead into bankruptcy and for investors to avoid investing in poorly run companies. This goes beyond studies like Altman (1986), Ohlson (1980) who attempt to predict bankruptcy

by looking at not only avoiding poor performers but also trying to identify those firms that thrive in recession periods.

Financial economists have been trying for decades to come up with a model that would most precisely forecast bankruptcies that firms might be potentially exposed to. For instance, Ohlson (1980) find four factors to be most significant in determining the likelihood of a firm's failure. These factors include current liquidity, operating performance, firm's size and financial structure. However, the previous bankruptcy models by the likes of Altman (1968), Beaver (1966), and Ohlson (1980), have failed to explain and forecast bankruptcies. Shumway (2001) suggests that these models ignore some very important factors that influenced the bankruptcy procedures such as the composition of assets, the infrequency of bankruptcy incidences, and observations that lag one year prior to the actual bankruptcies. According to Shumway (2001), the absence of these factors incurred unnecessary biases in their models.

There are costs associated with financial distress which are both direct and indirect. It is very important to distinguish direct and indirect costs and the causes that gave a rise to this expenditure. Previous literature suggests that measuring such costs is rather difficult. Direct costs are obvious expenditures associated with the event of financial distress. These costs include various administrative costs such as accounting and legal fees, preparation of documents, court related fees, and correspondence costs with the major stakeholders of the company who are creditors and shareholders. Moulton and Thomas (1993) and Weiss (1990) find direct costs to be approximately 3 percent of the liabilities of the large companies that were reorganised and as much as 20 percent of the liabilities of the smaller companies that were liquidated.

Direct costs are easy to evaluate because of their straight forward nature. Direct costs appear to be the same across the companies and industries. Indirect costs tend to be harder to assess as they may arise from many contingencies. Consequently, it is important to consider all potential factors that may interfere with the firm's operations and their influence on the firm's operating performance.

The indirect costs are tricky to estimate and require more tolerance to account for. These costs may arise from decreasing bargaining power, increased interest rates, leases, or insurance. Indirect costs appear to be larger than direct costs for both debtors and creditors (Moulton and Thomas, 1993). One of the best known ways to estimate the indirect costs was suggested by Altman (1984). His sample included companies that eventually went bankrupt. Altman (1984) used two ways to measure the bankruptcy

costs. First he estimated the decrease in sales of his sample as opposed to the other companies in the industry. Second he assessed the deviation between the EBITDA (earnings before interest and tax) forecast over the three year period before the bankruptcy filings and the actual EBITDA in the same time period (Altman, 1984). However the causality of the financial distress appears to remain rather unclear in Altman's paper. In the sense whether the decline in sales and earnings contributed to the financial distress or the actual economic conditions pushed the firms into financial distress which eventually affected the earnings forecast and resulted in the declined figures (Moulton and Thomas, 1993).

Recent studies found indirect costs associated with financial distress to be costly especially in recession periods because firms become economically distressed (Asquith, Gertner, and Scharfstein 1994, Gilson 1997, Hotchkiss 1995, and LoPucki and Whitford 1993). Moulton and Thomas (1993) find that indirect costs for both shareholders and creditors to be much higher than the direct ones. Firms that tend to suffer the most in the hard economic times, due to the rise in indirect costs, are the ones with the specialised products. Finance theory suggests that firms that have specialised products suffer the most in the downtime periods and are more exposed to financial distress (Moulton and Thomas, 1993). Opler and Titman (1994) suggest that indirect costs of bankruptcy are in fact positive and substantial.

The finance literature offers a number of variables that may act as forward looking predictors of economic performance in recession periods which I discuss below.

Operating Performance. Fundamental economic theory states that firms that are incurring losses exit the market and the ones that are profitable stay in. Silverman, Nickerson, and Freeman, (1997) suggest that firm's performance is correlated with its survival especially during tough economic times. Previous literature suggests a positive relation between the market performance and overall business survival. Moreover longer business survival tends to be positively related to greater sales. This was observed in larger companies which were the older ones and also had lower exit rates (Evans, 1987). Jovanovic (1982) finds that the entry size of the firms may be small but that if firm is successful it will eventually expand. This implies longer business survival is directly linked to greater operating performance and size (Jovanovic. 1982). There have been studies on the type of exit and operating performance which found certain types of business exits are in fact affected by the weak firm performance (Evans, 1987 Aldrich and Auster, 1986).

R&D, Advertising and Marketing Expenditure. Hawawini, Subramanian, and Verdin (2003) refer to R&D, Advertising and Marketing as vital intangible assets that are important in any economic condition. Ownership of this group of assets leads to the market's awareness of the goods and services the company is selling. In the tough economic times the management may decrease R&D, marketing and advertising expenditure to match its working capital. On the other hand decreasing or not having these activities diminishes the firm's ability to compete in the market (Klette, 1996). Having a competitive advantage is especially favourable in the tough economic times to help boost the company's revenues and sustain growth. In particular, strong R&D, advertising and marketing gives the company the ability to innovate and engage in price leading strategies which in turn help push its operations through the recessionary periods (Autor, Katz, and Krueger, 1998). Opler and Titman (1993) in particular find the share price reactions of low and high leverage companies during the recession periods depends on research and development intensity, amongst other factors. However, specialised product industries or customer driven industries tend to loose their sales in the time of economic distress (Titman and Wessel, 1988). This is more severe if these firms invest heavily in Research and Development. According to Titman and Wessel (1988) research and development is an implied indicator of the firm's specialisation. Firms with specialised products are more likely to be sensitive to the financial distress due to the customer lost sales in comparison to other firms (Opler and Titman, 1993).

Corporate Governance. Agency costs are concerned with the expropriation and waste of company resources by management when suitable measures to constrain them are not present. Specifically, managers may pursue any investment opportunity for the sake of sales growth which benefits them by adding credit to their performance review and recognised achievement in the industry among other executives and may not earn a suitable return for the risk involved (Jensen, 1993). In a recession period it is vital that the company be run as efficiently as possible, therefore, all resources must be put to their most appropriate use. One method of constraining mangers is ensuring the company has sound corporate governance policies in place (Gibbs, 1993). "*Corporate governance is positively related with operating performance and business survival, therefore firms with sound corporate governance will be better placed to survive economic downturns*" (Gibbs, 1993).

Previously researchers have looked at the corporate governance principles concerning manager-shareholder conflicts of interests. Those studies concentrated on finding why these arrangements differ among the firms. The most important factor that seemed to moderate the manager-shareholder conflict is having an adequate number of outside directors. Outside directors act as professional referees that supervise the company's management (Fama, 1980). The board consists of both inside (CEO, top management team – dependent directors) and outside (independent) directors (Fama and Jensen, 1983). If the main priority of outside directors is to oversee top management and act in the interests of company's shareholders then the more outside directors there are on the board, the more effectively they can control and restrain managers' activities that are concerned with matters other than maximising shareholders' wealth (Fama and Jensen, 1983).

Zahra and Pearce (1989) argue that it is very important to separate CEO and chairperson positions and also include as many as possible number of independent directors on the board. This will help to mitigate inside directors and top managers' ability to pursue self interest (Zahra and Pearce 1989). Having a majority of dependent (inside) directors on the board exposes firms' shareholders to unnecessary risks. This risk, caused by inadequate corporate governance, and inside management's dominance, can very well lead a company into financial distress and eventually into bankruptcy (Daily and Dalton, 1994).

Cash on Hand. Brush, Bromiley and Hendrikx, (2000) and Jensen, (1989, 1993) suggest that cash generated internally in excess of positive NPV projects, termed free Cashflow, lets management pursue self benefiting goals without turning to the equity or bond market (Jensen, 1993). There are generally two explanations of a company sustaining large cash reserves. Firstly, for managers' personal interests, and secondly to substitute the need for external financing when additional funds are required (Mikkelson and Partch, 2003).

According to Jensen and Meckling (1976), managers have a personal interest in the retention of excessive cash returns which in turn causes a conflict of interests between the managers and the shareholders (Jensen 1986). Gibbs (1993) argues that managers tend to invest the excessive cash reserves in below the market yield investments, such as diversification, poor expansion options and in other low yielding investments (Gibbs, 1993). According to Gibbs (1993) excessive cash holdings can not be directly observed,

instead they can be seen through low levels of leverage, stable cashflow, high diversification and limited positive NPV investment opportunities.

Jensen (1986, 1988) claims that excessive cash holdings above positive NPV opportunities are being invested in ventures that are meant to increase sales growth that are not necessarily profitable in nature. Consequently the benefits generated from investing FCF to grow sales on operating performance will have less value for companies with larger cash reserves (Brush, Bromiley, and Hendrickx, 2000).

However, it is also in manager's interests to minimise the risk of bankruptcy. Substantial cash reserves can allow companies to avoid external financing which can be both costly and, in recessions or liquidity crises, difficult to come by. The direct costs associated with external financing include legal, administrative and underwriting costs. Indirect costs comprise of effects that arise from the conflict between creditors and shareholders discussed by Jensen and Meckling (1976) and also information problems related to the outside investors (Jensen, 1986). Management can avoid these direct and indirect costs if the company sustains only enough cash on hand to finance value maximising investment opportunities. Large cash reserves benefit managers as they provide solid internal financing which is cheaper to external (Williamson, 1988). Consequently high level of free cashflow implies low leverage and less likelihood for bankruptcy to take place.

In declining and mature industries there is a likelihood of firms experiencing excessive cash holdings. This tends to arise from capital assets' net consumption and reinvestment requirements that are said to be relaxed (Daily and Dalton, 1994). Gibbs (1993) finds that industry conditions affect firms' investment opportunities and excessive returns are influenced by a firm's competitive advantage. Having competitive advantage is important as it provides earning power to the companies especially in the hard economic times (Gibbs, 1993). Froot (1993) argues that firms with large cash holdings may prevent competition by their ability to influence the price levels and having enough cash on hand to back them up.

Leverage. Leverage can be measured and defined in many ways such as the debt to equity ratio which equals to long term debt divided by common shareholders' equity. Rajan and Zingales (1995) states that the definition of leverage rests particularly on the objective of the analysis. Other measures of leverage include debt to total assets, total liabilities to total assets, debt to net assets and debt to capitalisation.

Debt imposes fixed obligations on firms that occur irrespective of sales. As recessions represent a period of decreasing sales in general, those companies selling non-necessity items can face a considerable constraint on revenue and turnover. As a result debt can impose a significant risk on the company due to the accompanying financial distress (Myers 2001). While debt in an expansionary period offers opportunities for growth and expansion, in recessionary periods it can be difficult to maintain (Myers, 2001).

As a firm's leverage increases, the company is likely to find it more difficult to survive periods of falling sales (Opler and Titman, 1994). According to Opler and Titman (1994), less leveraged companies attain larger market share to their highly leveraged counterparts. This can be explained as investors would not want to be involved with companies realising losses or experiencing financial distress. Furthermore, it was argued by Opler and Titman (1994) that financially stronger companies particularly use these periods of industry downturn to aggressively conquer a larger market share of their more vulnerable counterpart companies by increased advertising and strategic pricing. Also they suggest that firms with high leverage and considerable investment in research and development tend to suffer more and bear higher risk in economy downturn periods. In addition Opler and Titman (1994) argue that leverage has a greater impact on a firm's survival and is more prominent in more concentrated industries.

Firm specific risk. Finance theory argues that all information regarding a company is impounded into prices. As a result, as new information comes to the market prices change to reflect this (Wessel and Titman, 1988). The Beta coefficient measures how one companies price moves against the general level of the market. In essence this is argued as giving a measure of risk as it represents how the cashflows of a company are expected to be affected as market-wide conditions change. According to Myers (2001), a company with a very high beta coefficient, therefore, is expected to face a significant decline in price as investors revise the future cashflows of that company down. Beta coefficient therefore can indicate those companies who are most vulnerable to negative/positive changes in market conditions (Myers, 2001). Bradley, Janell and Kim (1984) suggest that there is a negative relationship between firm specific risk and operating performance. Also the trade off theory of finance argues that the probability of a company facing financial distress increases with the higher risk (Tinic and West, 1986).

Growth. According to Jovanovic (1982), firms that grow experience increasing profitability while those making losses contract and eventually exit the market. He

argues that the size of the firm at each certain point in time is a distinct statistical predictor of its business survival. Bogner et al (1996) finds that firm do in fact adjust their sizes to different economic conditions. However, if there are costs associated with the actual size adjustment, the firms may find it optimal to partially adjust and then catch on gradually at a later stage to the initially desired size (Bogner et al., 1996). Frank (1988) suggests that the company's entry size is a good indicator on the future success. Also Frank (1988) finds that recent growth is a good signal of the firm's performance expectations and hence implies a positive correlation between firm's survival and recent growth.

Size. Previous studies on bankruptcy models indicate that larger companies are more solvent than the smaller ones even if the numerical values of their financial ratios are the same (Beaver, 1966). This implies that the probability of failure is more likely to strike a smaller company in recessionary times. Empirical evidence supports this view (Mitchell, 1994). Smaller companies tend to experience higher volatility in their rate of return than their larger counterparts (Baumol, 1962). This implies uneven comparison and unfair predictions or results that are generated when comparing different asset size companies with the same financial ratios (Beaver, 1966).

Earlier research papers such as Sharma and Kesner, (1996) Mitchell, (1994) strongly support the effect of firm size on business survival and variance in operating performance. They argue that firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns.

Opler and Titman (1993) argue that lost sales in the time of financial distress are not only a function of leverage but also a function of the firm's size. For instance small companies tend to have higher volatility of earnings in the sense that they are more affected by the competitor and customer driven losses in sales (Opler and Titman, 1993). On the contrary larger firms tend to be disciplined by manager driven reductions in sales and could well benefit from an event of financial distress caused by the economic contraction (Titman and Wessel, 1988).

Furthermore, Rajan and Zingales (1995) suggest that large firms are more diversified and less likely to experience bankruptcy. In addition, issuing equity or debt will incur less direct costs for them. Therefore, large firms will have higher leverage comparing with the small firms. On the other hand, small firms are likely to employ more short term debt and less long term debt. This is due to the shareholder-creditor conflict

(Titman and Wessel, 1988, Michaelas et al., 1999). Rajan and Zingales (1995) find a strong positive relation between firm size and operating performance.

Tangibility. Tangible assets provide collateral to lenders in times of financial distress and act as security against debt. Tangible assets also represent protection to lenders against moral hazards resulted by the shareholder-creditor conflict (Jensen and Mekling, 1976). Therefore firms with the higher level of tangible assets are more likely to employ higher levels of leverage. According to Wessel and Titman (1988), Rajan and Zingales (1995) there is a strong negative relation between a firm's operating performance and tangibility but a positive association with long term debt. For instance, firms with relatively risky, intangible assets tend to borrow less than firms with safe, tangible assets. Also companies that secure their long term debt with tangible assets are in fact able to borrow at much lower interest rates than the ones with intangible assets (Bradley, Janell and Kim, 1984). In the event of financial distress intangible assets would be rather undervalued and are likely to sustain damage (Myers, 2001).

Previous studies conducted in the same research area suggested that there was linked evidence that supported existing finance theories and explained particular business survivals to some extent. Finance theory suggests a number of factors that may predict firm performance such as the financial distress costs which I have mentioned earlier. The previous research studies conducted on the prediction of bankruptcy procedures and business survivals such as Daily, Dalton, (1994), Altman, (1968), Ohlson (1980) have provided me with the base knowledge and understanding of industry and firm specific factors that influenced operating performance of companies in various markets globally. Their research methods and findings have given me a fundament to start with and their research limitations have led me to narrow down my research question. The niche that I will be analysing in this study is the factors that determine firm performance of New Zealand listed companies.

The contribution of this study to the earlier papers is to get a deeper understanding of this particular area in finance and test it in the context of the New Zealand financial market. This particular research methodology hasn't been previously applied to the New Zealand financial market. This makes it more interesting to study and observe what the results turn out to be: whether they would support earlier research papers even to an extent or turn out to be completely opposite. Furthermore, this research paper will reveal a better inside of the New Zealand financial market, showing the trends and

influences of different factors on firm performance. This would provide a better base for future researchers with some already existing results and trends.

This study aims to examine the influences of specific factors on the operating performance of the New Zealand listed companies. The regression model described earlier will be applied and tested in the context of the New Zealand stock market. This particular model is modified from the previously used models in earlier papers such as Hawawini, Subramanian, and Verdin (2003), Daily and Dalton (1994), Altman (1968), and Ohlson (1980).

Data and Methodology

This research paper is focused on relating the firm performance of New Zealand listed companies to the factors that supposedly influence their operations. I employ a sample of 76 listed companies excluding financial, investment, property and international companies for the period of 1996-2007 which includes a recessionary period as well as expansionary years following the Asian Financial Crisis. Recession period is identified based on the Reserve Bank's definition of a recession, namely two quarters of consecutive negative GDP. This study investigates firm specific factors that determine and predict how a company performs during periods of negative and positive economic growth in the market. The literature suggests eight key factors that have been found to have an impact on a firm's ability to perform strongly in other markets. All variables were collected one year prior to the actual sample period.

Three metrics are utilised to measure operating performance (OP): Return on Assets (ROA), Economic Profit (EP), and Tobin's Q (Q).

Return on Assets is a widely used accounting metric of firm performance (Chen, Church, 1996). It measures firms' profitability by dividing a company's earnings before interest and tax by its total assets (Westerfield, Ross, and Jaffe, 2005). This approach measures how effectively assets are used to create profits. The higher the ROA measure, the more favourable it is because the company is earning more than it has invested (Westerfield, Ross, and Jaffe, 2005).

Economic profit reflects the residual income which is the income adjusted for any capital costs, risk and size as well as accounting for the time value of money. In comparison with the traditional accounting metric (ROA), it reduces operating income by the cost of capital employed at any given time in order to generate the income (Hawawini, Subramanian, and Verdin, 2003). The main feature of this approach is that it is not limited by the accounting principles that are based on the historical costs that in turn appear to misrepresent true performance figures (Hawawini, Subramanian, and Verdin, 2003). I employ the same definition as Hawawini, Subramanian, and Verdin (2003), namely economic profit is equal to net operating performance minus weighted average cost of capital multiplied by the capital employed. Weighted Average Cost of Capital represents the expected return on company's securities such as stocks, bonds, and other forms of debt in proportion to their share in the company's capital structure at a given point in time (Hawawini, Subramanian, and Verdin, 2003).

The last ratio that is employed as an alternative measure of the operating performance is Tobin's Q. This ratio hypothesises that the combined value of all companies on the stock market should be approximately equal to their replacement costs. The ratio is calculated as the market value of a firm divided by the replacement value of its assets. For instance, if the value of the Q ratio is between zero and one then costs involved to replace the company's assets are greater than their market value. On the contrary a high Q ratio that is greater than one implies high growth potential, higher market value and consequently means better performance (Smirlock et al. 1984).

The previous literature has mostly relied on the ROA (Return on Assets) measure of operating performance (Rumelt, 1991). However, it is well known that this measure does not adjust for risk, yet risk is likely to impact on what we would view as good or bad operating performance for a firm (Hawawini, Subramanian, and Verdin, 2003). The ROA approach uses assets measures from the balance sheet where they are quoted at their historical costs rather than at their replacement values. This implies accounting ratios are not always good proxies for a firm's operating performance. However, having said that, it is by far the most widely used approach by many researchers in the past and today.

The alternative metrics of the firm's operating performance such as Economic Profit and Tobin's Q are market value based measures. Income is adjusted for any capital costs and consequently both risk and the time value of money.

To identify the factors that predict firm performance during periods of negative and positive economic growth in the market, I employ a regression model as specified below:

$$OP_t = \alpha + \alpha G_{t-1} + \alpha E_{t-1} + \alpha L_{t-1} + \alpha R_{t-1} + \alpha S_{t-1} + \alpha T_{t-1} + \alpha CG_{t-1} + \alpha C_{t-1} + \varepsilon$$

OP = operating performance (ROA, Economic Profit, Tobin's Q)
G = growth (log of revenues)
E = R&D, advertising and marketing expenses (intangibles)
L = leverage ratio (debt/debt+equity)
R = firm specific risk represented by beta
S = size (market capitalisation)
CG = Board Independence
T = tangibility (fixed assets/totals assets)
C = cash on hand (cash, deposits+marketable securities)
ε = random disturbance (constant)

I define the variables employed in this study and their calculation methods as following.

To proxy for R&D, Marketing and Advertising expenditure (E) I use the intangibles figure available on the companies' balance sheets. As intangibles represent non-physical assets and include items like patents, brand goodwill and intellectual property assets, a

firm with higher intangibles should be spending more on R&D and advertising expenditure. This proxy variable was also employed by Hawawini, Subramanian, and Verdin (2003).

I employ a corporate governance measure based on the method employed by Sharma and Kuang (2008) and Davidson et al (2005). I define corporate governance as the percentage of independent directors on the board. An independent director definition was based according to the New Zealand Securities Commission. The definition is as follows:

"who is not an employee of the entity and who does not represent s substantial shareholder and who has no other direct or indirect interest or relationship that could reasonably influence their judgement and decision making as a director."(New Zealand Securities Commission, 2004)

Independent directors are more objective in their decision making and in some instances are capable in stopping the managers from pursuing self benefiting strategies. Information related to calculating this variable is obtained from the corporate governance, board composition and annual reports available in the NZX Deep Archives.

Cash on hand (C) is represented by cash and deposits/marketable securities and is obtained from the companies' annual reports on a yearly basis.

Leverage (L) is measured as long term debt divided by the summation of long term debt and equity. The same approach was employed by Rajan and Zingales (1995). This method reflects the percentage of long term debt in the companies' capital structure. The Data is obtained from the companies' annual reports from the NZX Deep Archives.

Firm specific risk (R) is represented by Beta (β). It measures the risk of holding shares of a specific company against the market index in a well diversified portfolio. Beta variable is downloaded from Thompson Financial Datastream on a yearly basis for each company in the sample..

Growth (G) is measured as a logarithm of changes in sales. The same approach of measuring firm growth was used by Baskin (1989), Titman and Wessel (1988) and Sutton (1997). The data is extracted from the companies' annual reports.

Size (S) is represented by market capitalisation. Market values are firm values at a specific point in time and are preferred over net asset values. Assets values are recorded at their historical costs and are not good proxies for a current firm size. The data is outsourced from Thompson Financial Datastream on the annual basis at the end of each year in the sample.

Tangibility (T) is defined as fixed assets divided by total assets. The same approach was used by Jensen and Meckling (1976), as this particular measure of tangibility gives a better perspective of the level of fixed assets as opposed to total assets. The percentage of tangibles provides the level of collateral against any potential increase in leverage. This implies positive correlation between tangibility and leverage ratio. This measure is obtained from statements of financial position on a yearly basis from the NZX Deep Archives.

Table 1 provides this paper's research expectations and hypotheses where each variable has an expected sign and level of significance.

Table 1

Variable	Expected Sign	Significance
Growth	Positive	Strong - Moderate
Inangibles	Positive	Moderate
Leverage	Negative	Moderate
Beta	Negative	Strong - Moderate
Size	Positive	Strong
Corporate Governance	Positive	Moderate
Tangibility	Positive	Strong
Cash on Hand	Positive	Strong

A similar study was conducted by NZTE (New Zealand Trade Enterprise) on the Fortune 500 companies. This study tested the influence of the following factors; focus on the core business, strategic divestment, process and efficiency, increased advertising and marketing, contingency planning, acquisitions and strategic alliances and research and development against firms' profitability in the recessionary periods. This study hasn't fully explained the firm performance reaction to different factors changes or some shocks that the US economy had anticipated. Therefore the research question was not fully satisfied in terms of the existing research limitations.

Analysis

Results of the Summary of Descriptive Statistics

Table 1 provides Summary Statistics of the explanatory variables for the period of 1996-2007. Economic Profit ranges between -516,355 and 901,398,000 with the mean of 6,493 and median of 1,650. These results imply return on invested capital is greater that the cost of capital as a result leading to a positive value creation. Economic Profit is adjusted for size as was previously mentioned, and it primarily concerns the actual ability of a company to add value which in turn shows whether a company is capable of earning a positive spread between the rate of return and cost of capital. Also, standard deviation appears to be rather large 109,093, implying there are a lot of companies that fall outside of the mean value, and who are not creating value.

Tobin's Q has a minimum of 0.051 and maximum of 21.6 with the mean and median of 2.36 and 1.57 respectively. Tobin's Q of higher than one implies high growth potential, higher market value and consequently better operating performance. Also it is worth noticing quite a high standard deviation of 2.53 meaning a large variation in the results.

Median and mean betas are low, close to zero, implying no reaction to market changes. Average figure of 0.037 implies that on average firms do not follow the market, reflecting no percentage changes in stock prices relatively to changes in the market index. Beta of less than one generally means the stock is less volatile than market which is the case here. Such low betas are unusual and seem to be rather odd; however the betas were downloaded off Thompson Financial Datastream and were not available to calculate individually due to variation in the data availability.

Size averages at NZ$712,000,000, having a maximum value of NZ$15,778,000,000 and a minimum value of NZ$540,000. Diversity of companies was covered in the sample, and as one can notice that size wise companies do vary considerably. However, the results show that even big companies in New Zealand appear to be relatively small in comparison to other markets.

Table 1: Summary of Descriptive Statistics

	Mean	Median	Standard Deviation	Minimum	Maximum
Economic Profit	6.4933	1.6506	105.8432	-516.3550	901.3984
Intangibles	2.3975	3.0967	2.0565	0	6.3105
Corporate Governance	0.6965	0.75	0.1945	0	0.9167
Cash on Hand	3.0263	3.3303	1.5198	-0.0458	6.0607
Leverage	0.2376	0.2119	0.2242	0.0000	0.9000
Beta	0.0377	-0.0022	0.3408	-0.6840	1.8743
Growth	11.3019	11.82	2.4437	0	15.5949
Size	712.13	119.11	2049.46	0.54	15778.16
Tangibility	0.4398	0.4027	0.2939	0	0.9788
Return on Assets	0.0859	0.1041	0.2396	-3.3260	0.5309
Tobin's Q	2.3665	1.5740	2.5332	0.0519	21.66

Note: Table 1 provides summary of descriptive statistics for the sample of 76 companies, combined 571 observations. Economic Profit is net operating profit minus weighted average cost of capital multiplied by total assets shows how , Intangibles represent R&D, advertising and marketing expenditure and are taken from the balance sheets, Corporate Governance is the percentage of independent directors on the board, Cash on hand is cash plus deposits plus marketable securities and shows the amount of cash reserves, Leverage is debt divided by debt plus equity and is the amount of debt in percentage terms, Beta is the firm specific risk calculated by regressing each company's share price changes against the changes in market index, Growth is the log of changes in sales and shows the growth rate, Size is represented by market capitalisation, Tangibility is fixed assets divided by total assets showing the percentage of tangible assets, Tobin's Q is market value of assets divided by the book value or their replacement value, Return on Assets - earnings before interest and tax divided by total assets shows how effectively the invested funds generate income. All explanatory variables are annualised. All variables are measured on a lagged basis T-1.

Results of the Correlation Matrix

The results of the correlation matrix show that growth, cash, and intangibles, are positively associated with the firm size; whereas leverage is positively correlated with growth. These correlation findings appear to be inconsistent with finance theory and the results of previous studies'. In essence they suggest that growth firms tend to be more leveraged than value ones. Bigger firms seem to be growing faster and growing firms appear to generate higher return on assets. Growing firms appear to have larger cash reserves, higher investment in intangibles, and a higher level of fixed assets. Again these findings seem to be odd and do not support previous literature. Higher income yielding projects bear higher risk; this explains why profitability would be unconditionally negatively related with risk. Size is positively correlated with Tobin's Q, this implies larger companies have better operating performance which in turn does support finance theory and earlier papers results.

Table 2: Correlation Matrix – Pooled Sample

	Economic Profit	Intangibles	Corporate Governanc	Cash on	Leverage	Beta	Growth	Size	Tangibility	Tobin's Q	Return on Assets
Economic Profit	1.0000										
Intangibles	0.1777	1.0000									
Corporate Governance	-0.0143	0.1486	1.0000								
Cash on Hand	0.1826	0.2434	0.1479	1.0000							
Leverage	-0.0257	0.1774	0.1970	0.0936	1.0000						
Beta	-0.0251	-0.0227	0.0397	0.0035	0.0703	1.0000					
Growth	-0.0161	0.2509	0.1949	0.2936	0.3220	0.0326	1.0000				
Size	0.1804	0.3581	0.1253	0.3455	-0.0161	-0.0127	0.3379	1.0000			
Tangibility	-0.0388	-0.0072	0.1810	0.0774	0.2246	-0.0368	0.3113	0.1282	1.0000		
Tobin's Q	0.0964	0.1029	0.0911	0.0906	-0.0516	-0.0129	0.1129	0.4697	-0.0371	1.0000	
Return on Assets	0.1418	0.0182	0.0343	0.0379	0.0496	-0.0691	0.2617	0.0989	0.1592	-0.0486	1.0000

Note: Table 2 provides the correlation matrix for the sample of 76 companies, combined 571 observations. Economic Profit is net operating profit minus weighted average cost of capital multiplied by total assets shows how , Intangibles represent R&D, advertising and marketing expenditure and are taken from the balance sheets, Corporate Governance is the percentage of independent directors on the board, Cash on hand is cash plus deposits plus marketable securities and shows the amount of cash reserves, Leverage is debt divided by debt plus equity and is the amount of debt in percentage terms, Beta is the firm specific risk calculated by regressing each company's share price changes against the changes in market index, Growth is the log of changes in sales and shows the growth rate, Size is represented by market capitalisation, Tangibility is fixed assets divided by total assets showing the percentage of tangible assets, Tobin's Q is market value of assets divided by the book value or their replacement value, Return on Assets - earnings before interest and tax divided by total assets shows how effectively the invested funds generate income. All explanatory variables are annualised. All variables are measured on a lagged basis T-1.

Entire Sample Period: 1996-2007

Intangibles

R&D, Marketing and Advertising expenditure is represented by the intangibles variable. Management may decrease or increase intangibles' expenditure to match their company's working capital. On the other hand decreasing or not having these activities diminishes the firm's ability to compete in the market (Klette, 1996). In particular, strong R&D, advertising and marketing gives the company the ability to innovate and engage in price leading strategies which in turn help push its operations through the tough economic times (Autor, Katz, and Krueger, 1998).

My results show that intangibles appear to have a negative relationship with Operating Performance represented by the Return on Assets metric. The relationship is marginally significant at the 10% level. Better performing companies appear to be spending less on intangibles in the New Zealand financial market. Other measures of Operating Performance however show no association with Intangibles for this period. This finding might be a function of differences in proxies. Economic Profit and Tobin's Q are more market based figures and given that intangibles can be manipulated or used to cover up weak positions it may not be trusted by the market (Hawawini, Subramanian, and Verdin, 2003).

Corporate Governance

I employed a corporate governance measure based on the method employed by Sharma and Kuang (2008) and Davidson et al (2005). I defined corporate governance as the percentage of independent directors on the board. An independent director definition was based according to the New Zealand Securities Commission. Independent directors are more objective in their decision making and in some instances are capable in stopping the managers from pursuing self benefiting strategies (Gibbs, 1993).

I hypothesised a positive relationship between operating performance and corporate governance. My results appear to be insignificant and show no relationship between these two variables during the sample period of 1996-2007. However, there is a marginal significance at 5% level when operating performance is represented by Tobin's Q. This finding could be explained by the absence of corporate governance principles in the New Zealand financial market up until 2004. In 2004 all NZ listed companies were required to follow corporate governance principles and produce their own companies' corporate governance policies that they were to follow. Starting from 2004 it was mandatory for NZ listed companies to comply with NZX corporate governance rules and disclose their own mechanism of corporate governance. Furthermore, the NZX listed companies were to generate and file a separate statement (Corporate Governance Statement). However, when I test the period 2004-2008 to see if Corporate Governance has become significant the findings remained insignificant (Results not reported).

Cash on hand

Cash on hand is represented by cash and deposits/marketable securities. Substantial cash reserves can provide cash to avoid external financing and forgoing of some profitable investment opportunities which in turn supports shareholders' interests. (Majluf, 1984) External financing appears to be costly and includes direct and indirect costs associated with it. (Jensen and Meckling, 1976)

My results show a limited significance in the relationship between cash on hand and operating performance. The relationship is marginal and significant at the 5% level between these two variables when operating performance metric is represented by Tobin's Q. This finding supports previous studies and shows that high level of cash reserves provides basis for internal financing when required and avoids the need to raise funds externally which is a costly and risky procedure. Also large cash reserves may act as a potential back up in the tough economic times when operating performance may

vary and additional funds might be needed for any contingencies. This in turn would not put a company in a situation where external funding would be needed which involves additional costs and gives a rise to credit and other risks associated with it.

Leverage

Leverage was measured as long term debt divided by the summation of long term debt and equity, emphasising the proportion of debt in a firm's capital structure. According to Opler and Titman (1994), less leveraged companies attain larger market share to their highly leveraged counterparts. This could be logically explained as investors would not want to be involved with companies realising losses or experiencing financial distress. Recent studies on the determinants of firm performance find that in fact most profitable firms are likely to borrow less. For instance, Wald (1999) find that profitability variable represented by Return on Assets appears to be the largest determinant of the debt ratio, in cross sectional tests run in the US, UK, France, Germany and Japan

I hypothesised a negative correlation between operating performance and long term debt. My results are consistent with the previous papers' results such as Myers (1984). I find leverage to be negatively associated with the Return on assets metric of operating performance for the period of 1996-2007 at 1% significance level. However other metrics of operating performance namely Economic Profit and Tobin's Q show no significance whatsoever. This is reflected in the large standard errors we observe. There is a lot of variation and dispersion around my measures of operating performance which in turn may explain the reason they don't show any relationship. The finding for return on assets suggests that New Zealand companies prefer using internal funds to finance their projects as opposed to more costly and riskier external financing. This could be explained by taking into consideration risks associated with specific industries and perhaps business cycles associated with them. Given the high cost of debt in New Zealand, and high dividend yields, this would make sense based on pecking order theory of financing. (Myers, 1977)

Risk

Firm specific risk is represented by the Beta (β) coefficient. It measures the systematic risk that a specific firm is exposed to. Beta was downloaded from the Thomson Financial Datastream on a yearly basis for each company in the sample.

Bradley, Janell and Kim (1984) found a negative relationship between firm specific risk and operating performance. Also the trade off theory of finance states that the

probability of a company facing financial distress increases with the higher risk. (Tinic and West 1986)

I hypothesised a strong negative association between operating performance and firm specific risk based on the relationship between profitability and risk and previous studies' verification of beta significance on the operating performance. However I find no significant association between firm specific risk and operating performance during the period of 1996-2007. Earlier work conducted on the correlation of firm's profitability and risk by Myers (2001) does not hold in the New Zealand financial market during this sample period.

Growth

Growth was derived by taking the log of changes in sales. According to Jovanovic (1982), firms that grow experience increasing profitability while those making losses contract and eventually exit the market. Frank (1988) suggests that recent growth is a good indicator of the firm's performance expectations and hence implies a positive correlation between firm's survival and recent growth. The results of the regression support previous literature findings and show that growth does influence operating performance of the New Zealand listed companies during the period of 1996-2007.

Growth plays a key role in explaining operating performance based on the Return on Assets variable. However the risk adjusted measures do not pick up the growth variable, possibly indicating that after controlling for the higher returns expected of risky firms growth does not play a role in explaining firm performance or survival.

According to Return on Assets measure of operating performance growth was one of the most important firm factors affecting operating performance. (See table 3) This implies growth firms tended to survive and sustain healthier operating performance than value firms during 1996 -2007. Net Asset measure of operating performance shows positive association at 1 % significance level. Although the significance level of the relationship is strong, I would rather view the relationship as marginal due to other two metrics of operating performance not being associated with the growth variable.

Size

Size was represented by Market Capitalisation. Market values are true firm values at a specific point in time and are preferred over net asset values. Book value of assets is recorded at their historical costs and is not good proxies for a current firm size.

Previous studies (Sharma and Kesner, 1996, Mitchell, 1994) strongly support the effect of firm size on business survival and variance in operating performance. They argue that firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns.

These results hold in my observations for the period of 1996-2007 when operating performance metric is represented by Tobin's Q and Economic Profit. There is a strong positive relationship at the 1% significance level. This finding implies larger companies performed better in the New Zealand financial market during the sample period. This finding is consistent with the previous literature. When the Return on Assets measure of Operating Performance is tested the relationship vanishes and appears to be insignificant for the same time period.

Tangibility

Tangibility was defined as fixed assets divided by total assets. The percentage of tangibles provides the level of collateral against any potential increase in leverage. Firms with a higher level of tangible assets are more likely to employ higher levels of leverage which may be required in hard economic times when equity financing is harder to raise. This relationship was supported in the univariate correlations in Table Two. According to Wessel and Titman (1988) and Rajan and Zingales (1995) there is a strong inverse relation between a firm's operating performance and tangibility.

Tangibility appears to be negatively correlated with operating performance represented by Tobin's Q at the 5% significance level during the sample period of 1996-2007. The tangibility coefficient is insignificant when tested against the other two operating performance measures namely Return on Assets and Economic Profit. This means that the significance is rather weak and not very reliable as it is significant only with one metric of the operating performance. There is multi co-linearity problem with Return on Assets and Economic Profit measure of Operating Performance as both these figures are based on book value of total assets so does the tangibility variable.

Table 3: Summary of Multiple Regressions Results

Entire Sample	Return on Assets 1996-2007		Economic Profit 1996-2007		Tobin's Q 1996-2007	
	Coefficients	Standard Error	Coefficien	Standard Error	Coefficien	Standard Error
Intercept	-0.2281	0.0621	-11.1407	24.4222	1.8771	0.5721
Intangibles	-0.0110	0.0057 *	1.5211	2.2528	-0.0470	0.0528
Corporate Governance	0.0294	0.0537	8.7306	21.1129	1.0829	0.4945 **
Cash on Hand	-0.0049	0.0071	2.8107	2.7871	0.1630	0.0653 **
Leverage	-0.1445	0.0504 ***	-30.8041	19.8092	-0.1596	0.4640
Beta	-0.0088	0.0298	5.5153	11.7173	-0.1825	0.2745
Growth	0.0314	0.0053 ***	-0.8914	2.0867	-0.0557	0.0489
Size	-1.25E-06	5.55E-06	0.023328	0.002182003 ***	0.000546	5.11E-05 ***
Tangibility	0.0217	0.0387	2.9806	15.2212	-0.7032	0.3565 **
Adjusted R Square		0.0652		0.1995		0.1997

Note: Table 3 provides summary of multiple regressions results for the period of 1996-2007, the sample of 76 companies, combined 571 observations. Economic Profit is net operating profit minus weighted average cost of capital multiplied by total assets shows how , Intangibles represent R&D, advertising and marketing expenditure and are taken from the balance sheets, Corporate Governance is the percentage of independent directors on the board, Cash on hand is cash plus deposits plus marketable securities and shows the amount of cash reserves, Leverage is debt divided by debt plus equity and is the amount of debt in percentage terms, Beta is the firm specific risk calculated by regressing each company's share price changes against the changes in market index, Growth is the log of change in sales and shows the growth rate, Size is represented by market capitalisation, Tangibility is fixed assets divided by total assets showing the percentage of tangible assets, Tobin's Q is market value of assets divided by the book value or their replacement value, Return on Assets - earnings before interest and tax divided by total assets shows how effectively the invested funds generate income. All explanatory variables are annualised. All variables are measured on a lagged basis T-1.
*10% significance level
**5% significance level
***1% significance level

Recessionary and Expansionary Years

The significance of variables may change depending on the state of the economy and therefore I test the relationships in alternate states of the world. Recession period was identified based on the Reserve Bank's definition of a recession, specifically two quarters of consecutive negative GDP. Two years fall under this definition which is the period of 1997-1998. Remaining years in the sample are the years of economic growth and are treated as the general economy expansion period starting in 1999 up until 2007.

Recessionary Years: 1997-1998

Looking at the results of the recession period regression we may spot the following differences in the findings. Corporate Governance, size and tangibility loose their marginal significance, the coefficients show that the relationships don't hold any longer during the period of 1997-1998. Cash on hand changes its significance from 5% to 10% level still being a very marginal significance and a weak relationship implying relation only with one metric of operating performance represented by Economic Profit.

The Corporate Governance coefficient becomes insignificant for the recessionary period of 1997-1998. This finding emphasises the absence of corporate governance principles in the New Zealand stock exchange until 2004. Also during harsh economic times when the companies are struggling management might not be pursing their self benefiting strategies and rather think more about value maximisation.

Cash reserves remain marginal significance but at a lower level (10%) when regressed against the Economic Profit metric. Other measures of operating performance show no significance in the relationship. However the relationship can be interpreted as cash becomes tight during recessionary period and external financing becomes more costly and bears higher risks. Having large cash holdings on hand provides companies with the basis of internal funds to finance any upcoming projects that have positive NPVs.

Growth retains its positive and significance relationship at the 1% and 5% levels when regressed against Return on Assets and Tobin's Q respectively. This finding implies growth firms react more aggressively to the economy downtime periods and generate higher returns than the value firms. Also this result means a better asset utilisation during tough economic times. The relationship between growth and operating performance becomes stronger during this period.

The Size coefficient appears to be insignificant for this period which may imply size unresponsiveness to the firm performance during harsh economic times. Furthermore, not always large companies generate the most excessive returns in relation to their costs and inputs as opposed to their smaller counterparts particularly during hard economic times.

Tangibility looses its marginal significance for this period due to possibly lower levels of fixed assets maintained by the companies during the economically depressed years.

The results for this sub-period are based on the fewer observations reflected in larger standard errors and consequently weaker relationships.

Expansionary Years: 1999-2007

In contrast expansionary years bear more significance in the variables. For instance Cash on Hand is significant at 10% level still holding its positive relation to operating performance, the tangibility coefficient appears to be significant at 1% level being positively associated with operating performance. Growth remains to be positively related to operating performance at 1% significance level. Size, leverage and intangibles remain their association and significance level during this period.

Corporate Governance variable shows higher significance at the 1% level and is positively related to operating performance during the expansion years.

Cash on Hand is marginally significant at the 10% level only with Tobin's Q, but shows no relationship with other metrics of operating performance. However positive association between cash on hand and operating performance during this period implies cash reserves significance even during expansionary period. This could be due to new projects financing that may have had positive impact on a firm performance as the economy got into the recovery period.

Leverage appears to be significant in the good economic times as opposed to the recession years. This finding explains that leverage is less riskier to maintain in the good economic times due to positive economic growth, general economy and market expansion.

Tangibility is up from 5% to 1% significance level during the expansion years only when regressed against Tobin's Q, does not show any significance against other metrics of operating performance implying weak relationship results. However fixed assets tend to be more important in the boom years as they provide collateral against leverage which is significant in the expansion years.

Table 4: Summary of Multiple Regressions Results: Recession Period

Recessionary Years	*Return on Assets* 1997-1998		*Economic Profit* 1997-1998		*Tobin's Q* 1997-1998	
	Coefficients	*Standard Error*	*Coefficien*	*Standard Error*	*Coefficien*	*Standard Error*
Intercept	-0.3160	0.1629	119.4188	78.9860	-1.9113	1.4616
Intangibles	-0.0159	0.0126	-3.0155	6.1118	0.1137	0.1131
Corporate Governance	0.0505	0.0984	-12.3991	47.7127	0.6014	0.8829
Cash on Hand	1.50E-05	0.0148	-13.0565	7.1920 *	0.1543	0.1331
Leverage	0.0321	0.1194	-44.9843	57.8773	-1.3969	1.0710
Beta	0.0196	0.0565	-0.5379	27.3823	-0.2991	0.5067
Growth	0.0310	0.0124 ***	-8.3940	5.9878	0.2256	0.1108 **
Size	-2.84E-06	2.54E-05	0.0021	0.0123	0.0003	0.0002
Tangibility	0.0902	0.0744	-31.0992	36.0548	0.9521	0.6672
Adjusted R Square		0.0720		0.0465		0.0896

Table 5: Summary of Multiple Regressions Results: Expansion Period

Expansionary Years	Return on Assets 1999-2007		Economic Profit 1999-2007		Tobin's Q 1999-2007	
	Coefficients	Standard Error	Coefficien	Standard Error	Coefficien	Standard Error
Intercept	-0.2307	0.0703	-9.1305	26.2207	2.1287	0.6435
Intangibles	-0.0112	0.0067 *	1.8774	2.5052	-0.0880	0.0615
Corporate Governance	0.0388	0.0657	-0.9188	24.4775	1.5677	0.6008 ***
Cash on Hand	-0.0061	0.0083	3.0163	3.0787	0.1289	0.0756 *
Leverage	-0.1547	0.0566 ***	-35.6920	21.1120 *	-0.0644	0.5182
Beta	-0.0171	0.0353	7.4368	13.1655	-0.1872	0.3231
Growth	0.0319	0.0062 ***	-0.2303	2.3034	-0.0721	0.0565
Size	-1.14E-06	6.15E-06	0.0211	0.0023 ***	0.0006	5.62E-05 ***
Tangibility	0.0104	0.0463	9.9080	17.2466	-1.0994	0.4233 ***
Adjusted R Square		0.0590		0.1896		0.2135

Note: Table 2, and 3 provide summary of multiple regressions results for the period of 1997-1998, and 1999-2007, the sample size is 76 companies, combined 65 and 472 observations respectively. Economic Profit is net operating profit minus weighted average cost of capital multiplied by total assets shows how , Intangibles represent R&D, advertising and marketing expenditure and are taken from the balance sheets, Corporate Governance is the percentage of independent directors on the board, Cash on hand is cash plus deposits plus marketable securities and shows the amount of cash reserves, Leverage is debt divided by debt plus equity and is the amount of debt in percentage terms, Beta is the firm specific risk calculated by regressing each company's share price changes against the changes in market index, Growth is the log of change in sales and shows the growth rate, Size is represented by market capitalisation, Tangibility is fixed assets divided by total assets showing the percentage of tangible assets, Tobin's Q is market value of assets divided by the book value or their replacement value, Return on Assets - earnings before interest and tax divided by total assets shows how effectively the invested funds generate income. All variables are annualised. All explanatory variables are measured on a lagged basis T-1.

*10% significance level
**5% significance level
***1% significance level

Conclusion

This research paper tested eight firm factors and their influence on firm performance represented by three metrics of operating performance, namely Return on Assets, Economic Profit and Tobin's Q. These measures of profitability reflected different aspects of firm performance during the period of 1996-2007 and revealed different results from the earlier literature conducted in other financial markets. These results explain what factors were associated with firm level operating performance.

My results supported earlier studies' results to an extent that firm factors appear to influence the operating performance to a small degree irrespective of the operating performance metrics. Size factor appeared to be the most significant at 1% level supported by two metrics of operating performance (Economic Profit and Tobin's Q), followed by growth and leverage at 1% significance level only when regressed against Return on Assets metric of operating performance. Corporate Governance, Cash on Hand, and Tangibility had a marginal significance at 5% reflected by Tobin's Q, again the relationships were rather weak due to the other measures of operating performance not reflecting these associations.

The results of the sub periods, namely recession years of 1997-1998 and expansion years of 1999-2007, do not show any significant relationships; once again some marginal significance is present in the results that are supported generally by one of the metrics.

The adjusted R squared values ranged between 6%-20% implying the existence of additional variables that may have influenced firm performance of New Zealand listed companies during the sample period of 1996-2007. The results indicate that on average 20% of variation in operating performance during the sample period is explained by the variation in the explanatory variables.

Data availability is a major issue in finance studies of the New Zealand financial market. If one variable is not computable, then the entire firm year has to be excluded from the sample. This limits the number of observation in the entire sample, which consequently restricts the variations in findings. The results of this study are based on a sample of 76 listed companies that significantly vary in size, so generalisation of the results should also be considered. The entire sample is not big enough and limits the power of the regression model. The factors that determine firm performance of NZ

listed companies therefore can be further studied and researched. As data becomes more available with time, future researchers might include additional factors that influence firm performance. Firstly, one could use two independent variables for size, creating two groups of companies that would fall under small and large sized companies. Also, using another variable for firm specific risk would be interesting to observe, such as the volatility of earnings (variation in earnings before interest and tax), as the beta coefficient did not seem to be highly associated with operating performance. A study investigating influence of agency costs on firm performance could also be of a good value to the finance research.

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