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# **RISK, RETURN AND DEGREE OF OWNER INVOLVEMENT IN PRIVATELY HELD FIRMS**

**By**

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**ABSTRACT**

Financial theory states that the variability of an asset's return should be explained by the relative riskiness of that asset (Sharpe, 1964). This concept has been built around, and applied to, publicly-listed companies for which market information (which forms the basis of the risk and return measures) is easily visible and obtainable. Unfortunately, the fact that such information is rarely (if ever) available for small businesses, severely limits the usefulness of such a theory for privately-held enterprises. Therefore by using data from 100 small businesses and three measures of risk, this study provides empirical evidence that for small businesses, there is no significant relationship between financial returns and risk, but there is a relationship between the level of control exerted by the owners of a firm and the financial returns of that firm. This paper also provides evidence that owners with little or no control of a firm, take action to prevent agency costs. This action is in the form of disbursements to shareholders, rather than using debt as a means of reducing agency costs.

## **1.0 INTRODUCTION**

The relationship between risk and return is fundamental to modern financial theory. Put simply, it assumes that as the riskiness of an asset or investment increases, so should the expected return ('return' being the financial return achieved, and 'risk' being defined as the variability of returns). Investors choose whether or not to invest or own assets depending on their personal appetite for risk.

This risk/return relationship has been well researched for large publicly listed companies, but its application to small business enterprise has been limited. As small business is an ambiguous term due to a number of definitions, for the purpose of this report small business will mean *unlisted, privately-held* business (McConaughy, Matthews and Fialko (2001)). Given that a majority of businesses can be considered as small, it is important to establish how (and indeed whether) these businesses fit into the framework of modern financial theory.

Therefore the purpose of this paper is to empirically test for a relationship between risk and return for small businesses, and to also test whether the level of control owners of a firm have will affect the returns of that firm. The next section covers a brief review of the past literature, followed by the data (section 3) and methodology (section 4). Section 5 outlines the results and section 7 concludes.

## **2.0 LITERATURE REVIEW**

In the world of publicly traded stocks there have been many attempts made to formulate the relationship between risk and return. One of the most recognised methods of defining this relationship is the Capital Asset Pricing Model (CAPM) developed by Sharpe (1964). The CAPM identified a positive relationship between the expected return on stock and Beta. While initial tests of this model on publicly traded stocks supported this relationship (see Black, Jensen and Scholes (1972); Fama and McBeth (1973)), it has

increasingly been the subject of disapproval. Fama and French (1992) were very critical of the usefulness of Beta. In place of the CAPM, Fama and French (1993) used a three-factor model to represent the relationship between risk and return. They found firm's size and the ratio of the book value to market value of its common equity were better proxies for risk. However Fama and French's work has also be criticised (see Kothari, Shanken, and Sloan (1995); Haugen (1999)) which they defended in Fama and French (1996).

In the world of small business finance the relationship between risk and return is even more difficult to determine. Attempts to apply the above risk/return models have been met with very limited success. Privately held firms are not traded regularly on a public exchange making it difficult to ascertain Beta and the expected returns necessary to apply the CAPM. One solution to this problem was the idea of using an accounting Beta in place of the market-derived Beta. The use of an accounting Beta was first proposed by Ball and Brown (1969) and spawned a variety of studies. Vos (1992) investigated the usefulness of an accounting Beta for small businesses. He concluded that the existing CAPM model and the use of accounting information are not adequate to capture the relationship between risk and return, as confirmed in a later study by Vos (1995).

Fama and French's (1993) three factor model is also of limited use for small businesses as it requires a market equity. This market equity is difficult to determine for unlisted companies not publicly traded because there is no determined market price. In an effort to resolve this problem, Vos (1995) used a sample of small businesses that had been sold, therefore creating an established market price for each business. Vos found that accounting Betas are of limited use as a risk measure for small businesses, but he did find that book to market equity is helpful when related to return on assets (gross). However the difficulty in determining the market price for a small business without it being sold is still present. Thus new models need to be developed especially to understand the risk and return relationship for a small business.

Small firms have many characteristics that differentiate them from listed companies. McDowell (1995) believed these differentiating characteristics could be related to one feature – the integration of personal and business accounts. The personal and business affairs of the owners of a small business may be inseparable. Ang (1992) surmised this integration of accounts and the often unlimited liability of owners as meaning “business risk is no longer separable from personal risk as business bankruptcy could cause personal bankruptcy” (p. 186). To develop this notion, this paper tests the relationship between the level of ownership in a small firm and the level of risk to the owner(s).

This paper also examines the relationship between the level of control owners of a firm have and the financial returns of that firm. This is, in effect, a study of the agency costs of a firm, as introduced by Jensen and Meckling (1976). Ang et al (2000) considered that “[w]hen management own less than 100 percent of the firm’s equity, shareholders incur agency costs resulting from management’s shirking and perquisite consumption.” (p. 81). They examined these agency costs across a wide range of ownership structures, from the firms whose managers own 100 percent of the firm to those whose managers are paid employees with no equity in the firm. The author’s conclusions were that agency costs;

- are higher when an outsider (non-owner) manages the firm,
- vary inversely with the manager’s ownership share, and
- increase with the number of non-manager shareholders a firm has.

Their results also showed that firms managed by owners exhibited greater efficiency and better asset utilisation.

Vos and Forlong (1998) looked at the role of debt in minimizing agency costs for firms. Their study ranged from small businesses, to the initial public offering (IPO) stage, through to listed companies. They found that small, unlisted firms gain very few tax or agency advantages from debt, tending rather to take on debt only out of necessity. However, they did find that debt reduced agency costs at the IPO stage and this advantage was enhanced in mature listed companies. In relation to debt, this paper explores empirically, whether debt is related to the level of control exerted by the owners of a firm.

### 3.0 DATA

Small business data is often very difficult to obtain. This unique data was drawn from a sample of 100 ‘bank’ (the company wishes to remain anonymous) customer files. The four Senior Business Managers at this bank hold a total portfolio of 226 customers. Each customer is assigned a randomly generated Customer Registration Number (CRS) from which the first 25 were taken from each manager’s portfolio. Figures 1, 2 and 3 below show the spread of the sample by industry and size (in terms of numbers of staff and value of total assets).

Table 1:

*Distribution of Sample by Industry*

Industry	Number of Firms
Agriculture, Forestry and Fishing	4
Manufacturing	31
Property and Construction	4
Wholesale Trade	29
Retail Trade	5
Accommodation and Restaurants	2
Transport and Storage	6
Communication Services	1
Finance	2
Business Services	12
Health and Community Services	3
Media and Culture	1

Figure 1:

*Spread of Sample by Size (Number of Employees)*

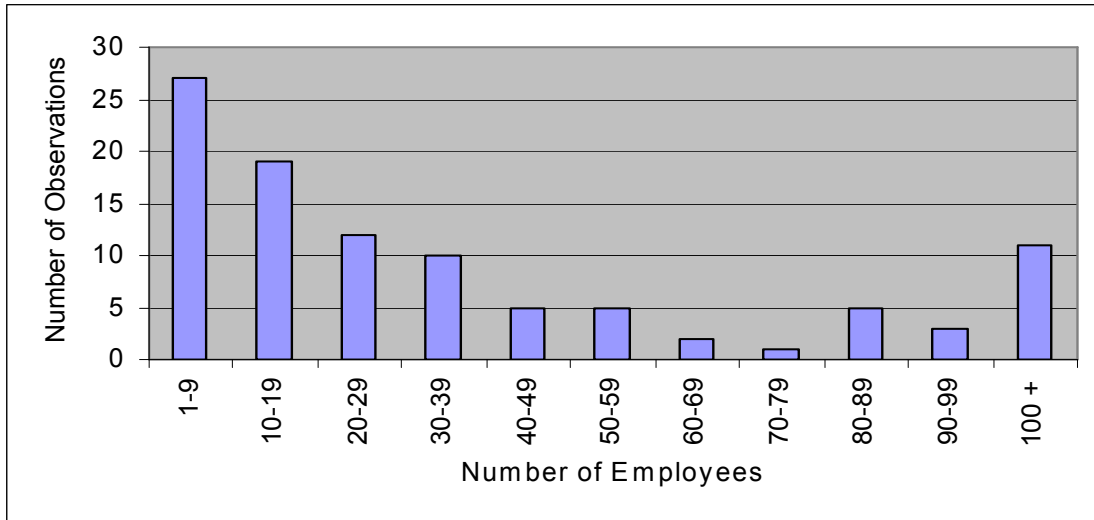
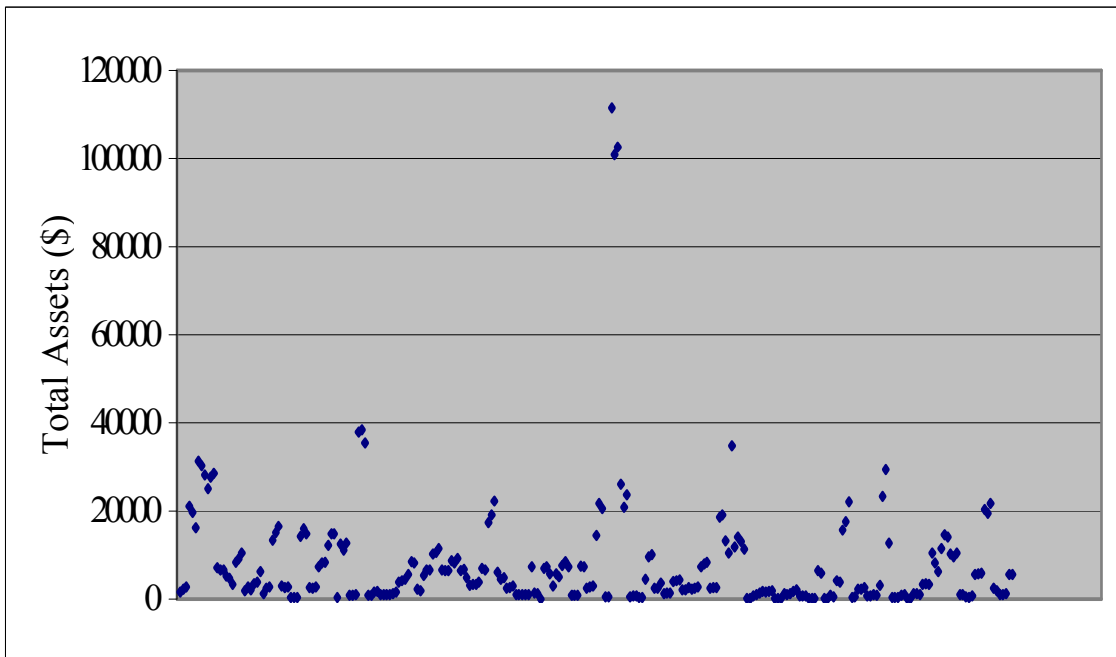


Figure 2:

*Spread of Sample by Size (Value of Total Assets)*



A spreadsheet was formed to collate financial statement data, bank assigned risk grade, distance grade (as defined below) and industry and staff number information for each firm. Where possible, the data was collected from the latest three years of financial statements on file. In some cases, only one or two years were available. From this raw data, the mean value for each data item (e.g. Total Assets, Net Profit after Tax) over the three year period has been used in the analysis. This means the average financial statements for each company have been used in order to smooth out any inconsistencies in any single year.

The sample is a group of ‘bank’ customers (largely Auckland based), and as such, is biased towards Auckland businesses that utilise bank funding and fit the risk appetite of the bank. Further, the data gathered for this report has been based on information presented in the customer files which is prepared by the customers’ respective bank managers. Assessment of things such as the business’ reliance on the owner(s) and individual business risks are dependent on the manager’s perception and judgement ability.

#### **4.0 METHODOLOGY**

For each customer, the following variables have been calculated on the basis of the information collected above.

Financial Return: Measured for each company in four different ways:

- (i) *Return on Equity (ROE)*
- $$\frac{\text{(Net Profit After Tax + Above Line Shareholder Disbursements)}}{\text{Quasi Equity}}$$

Where:

- Above the line shareholder disbursements includes payments to shareholders that are deducted before profit calculation. This includes



items such as salaries, wages and bonuses, interest paid on shareholder loans, management fees and directors fees.

- Quasi equity = (Total Ordinary Equity + Loans from Shareholders – Loans to Shareholders). Quasi equity is a unique characteristic of the closely held business. Use of quasi equity in calculating shareholder return will give a clearer picture of the actual funds invested. Shareholders either:

- lend to the business (either directly or through retention of profits/salaries in their current accounts) to fund business assets; or
- borrow from the business for personal use.

(ii) *Return on Assets (ROA)*

$$\frac{\text{Net Profit After Tax+ Above Line Shareholder Disbursements}}{\text{Total Assets}}$$

(iii) *Return on Equity – Gross (ROEG)*

$$\frac{\text{Gross Profit}}{\text{Quasi Equity}}$$

Where:

- Gross Profit is profit before interest, tax, drawings, etc

(iv) *Return on Assets – Gross (ROAG)*

$$\frac{\text{Gross Profit}}{\text{Total Assets}}$$

## **Risk Grade**

The bank assigns each customer a risk grade, which takes into consideration factors including:

- i. *economic risk* – how business performance is impacted by economic cycles;
- ii. *firm/industry specific risk factors* – such as client/supplier relationships, exposure to debtors, impacts of technological change, leverage, cash flow generation, reliance on management and ability of management.

As such, the risk grade can be considered a proxy for systemic risk and non-systemic (firm specific) risk. It should be noted that there is a third factor used in determination of risk grades by the bank. The level of security held by the bank can have a bearing in some cases. This study assumes that factors (i) and (ii) above are the overriding influence on risk grade.

The risk grade ranges from 35 to 100, with 35 being the greatest risk. 35 is the lowest risk grade value of the sample because the bank will not lend money to businesses with risk grades lower than 35.

## **Distance Grade**

The distance between the ultimate shareholder(s) of a firm and the managers, and the degree of reliance on owners for decision making and day-to-day running was assessed from customer files and from each responsible Business Manager's understanding of the clients business. Distance was assessed on a 1 - 9 scale, as set out in Table 1 below. Determining whether or not the owner provides personal guarantees to the bank assists with assessing how closely business/personal interests are inter-related.

Table 2:

*Distance Grading Scale*

<b><u>Level:</u></b>	<b><u>Characteristics:</u></b>	<b><u>Examples</u></b>
1	1 owner who is sole owner/manager. Responsible for all the decision making.	Sole Proprietor
2	2 or 3 owner/managers who work closely within the business. There are no non-owner managers. Responsibility for decision making lies between them.	Small Partnership or limited liability company.
3	1 owner/manager who works closely within the business but is assisted by 1 or 2 senior level non-owner manager/s e.g. Financial controller. Majority of the decision making is made by the owner/manager.	Small business which have grown to the point where the owner requires some assistance to operate the business properly.
4	1 or 2 non-managing owners who largely leave responsibility of the running of the business to 1 or 2 owner/managers. All owners take part in any major decision making. Owner/managers assume day-to-day decision-making.	A retired owner who has bought in a younger owner (maybe family member) to assist, possibly a take over - succession planning.
5	Up to 5 non-managing owners who largely leave responsibility of the running of the business to 1 or 2 owner/managers. Higher level decision making may be with reference to the non-managing owners.	Sleeping partner(s) exist(s).
6	1 owner who largely leaves responsibility of running the business to non-owner managers. Higher level decision making may be with reference to the owner.	
7	Up to 5 non-managing owners who are involved in decision making at higher level but leave responsibility of running the business to a maximum of 3 non-owner senior managers. Non-owner managers assume the majority of the decision making.	
8	A number of non-managing owners (largely domestic) directly own the business, but the business is run by a team of non-owner managers who assume all decision making.	Medium sized NZ business, maybe approaching IPO stage.
9	Many offshore shareholders whose ownership may be through offshore holding companies. Large management team. It is likely that shareholding will be through one or more offshore parent companies.	The NZ representation of a large multi-national firm

**Key:**

**Personal g'tee is likely**

**Personal g'tee may or may not be provided**

**Personal g'tee not likely**

## Distance Measure

Measured as the degree to which quasi equity (as defined above) and ordinary equity differ. This can be considered a measure of the shareholder(s):

- Willingness to contribute extra capital to fund business, and therefore their commitment to that business; i.e. shareholders provide funding for the business over and above ordinary equity (share capital).
- Ability to draw funds from the business to fund other lifestyle interests. This could be for personal consumption, funding of property or another investment.

The degree to which shareholders either borrow from or lend to their business can be considered an indication of how closely linked their personal and business affairs are.

Thus, the Quasi Equity measure will be defined as the absolute value of:

Ordinary Equity Ratio

$$\frac{\textit{Paid up Capital + Retained Earnings}}{\textit{Total Assets}}$$

Less: Quasi Equity Ratio

$$\frac{\textit{Quasi Equity (as defined earlier)}}{\textit{Total Assets}}$$

By using the absolute value there is no distinction made between borrowing from, or lending to the business because both are considered to be characteristic of the more closely-held firm. As such, firms with shareholders whose lending to or borrowing from the business is greater (proportional to the level of ordinary equity) will have greater distance measures.

Once all the data had been collected and variables calculated for each customer, the following analysis was performed to test for relationships among variables and identify any significant trends.

### **Correlation Tests**

The four variables outlined above (Financial Return, Risk Grade, Distance Grade and Distance Measure) were tested for relationships with each other using the non-parametric Spearman Rank-Order Correlation Co-efficient test. The Spearman rank-order correlation co-efficient ( $r_s$ ) is measured as:

$$\frac{\sum x^2 + \sum y^2 - \sum d_i^2}{2\sqrt{\sum x^2 \sum y^2}}$$

Where  $d_i = X_i - Y_i$  (the difference in the ranks on the two variables). The significance of  $r_s$  is tested by the statistic  $z = r_s \sqrt{N - 1}$ .

The Spearman Rank-Order Correlation Co-efficient test is considered appropriate because:

- The data includes a number of financial ratios, which are not normally distributed. Non-parametric statistics tests make no assumption with regard to the distribution of the data being tested.
- Both variables (in all tests) are measured in an “ordinal” scale and can therefore be ranked.
- This test reduces influence of “out-liers” that are likely to arise with ratio analysis.

### **Median Tests**

The sample was split into groups as follows:

- i. Three groups with increasing Risk Grades Variables
- ii. Three groups with increasing Distance Grade Variables
- iii. Three groups with increasing Distance Measure Variables.

Further to the correlation tests above, a median test was performed to test if the Financial Return Variables within each of (i), (ii) and (iii) were different. This was done to ensure the same trends were observed under different test calculations. The Median Test calculates the number of results above and below the total sample median in each group. Results are placed in a contingency table of observed results and results expected if the Null Hypothesis is true. One tailed Chi Square Tests ( $\chi^2$ ) tests the Null Hypothesis that the groups have come from a population with an equal median, and is measured as:

Where:  $n_{ij}$  = the number of cases categorized in the  $i$ th row of the  $j$ th column.  
 $E_{ij}$  = the number of cases expected in the  $i$ th row of the  $j$ th column when  $H_0$  is true.

$$\chi^2 = \sum_{i=1}^2 \sum_{j=1}^k \frac{(n_{ij} - E_{ij})^2}{E_{ij}}$$

**Testing for agency cost control factors**

The use of debt and disbursements to shareholders have been identified as methods that owners who are further removed from management may use to control agency cost (see Jensen and Meckling (1976); Ang (1992, 2000)). The sample was tested for the relationship of these control factors with the two distance variables, using the following tests:

- i. Spearman rank-order correlation tests were performed to test for a relationship between External Debt as a percentage of Total Assets and both Distance Grade and Distance Measure.
- ii. Spearman rank-order correlation tests were performed to test for a relationship between Dividends as a percentage of Net Profit After Tax and both Distance Grade and Distance Measure.
- iii. Spearman rank-order correlation tests were performed to test for a relationship between Total shareholder disbursements as a percentage of Net Operating Profit and both Distance Grade and Distance Measure. Total shareholder disbursements are Above-line shareholder disbursements plus dividends. Net Operating Profit is Net Profit After Tax plus Above-line shareholder disbursements.

- iv. One tailed Chi Square Tests were performed on the three groups for each of Distance Grade and Distance Measure to test if there was a significant difference in the groups of the proportion of firms who simply “pay dividends” or “don’t pay dividends” as distance of the shareholder(s) increases. The Chi-Square test statistic ( $\chi^2$ ) is calculated as for the Median Test above, and tests the Null hypothesis that the proportion of firms who “pay dividends” or “don’t pay dividends” is the same.
- v. For increased robustness, non-directional Wilcoxon Signed-Rank Tests were also carried out to test whether there was a difference in the financial returns between the firms in the sample with lower Distance Grades (1-4), i.e. more closely held firms, and the firms in the sample with Distance Grades of 5-9 (inclusive), that is, the more distant firms.

## 5.0 RESULTS

### Variables

Table 3 below summarises the central tendency and distribution for each of the variables measured, based on the average figures.

Table 3:

*Central Tendency and Distribution of Variables*

		Mean	Median	Standard Deviation	High	Low
<b>Financial Return</b>	ROE	-0.24104611	0.3391152	7.3846637	4.2282856	-72.5
	ROA	0.24582813	0.1406692	0.3588336	1.6554894	-1.0114155
	ROEG	0.89147381	1.5296423	9.5650237	19.758124	-81.4
	ROAG	0.90459051	0.6548433	0.805924	4.7128126	-0.0637495
<b>Risk Grade</b>		55	52	11.189822	92	35
<b>Distance Grade</b>		4.51	4	2.5995143	10	1
<b>Distance Measure</b>		0.18939	0.07975	0.2575714	1.0965287	0

*Financial Return*

Financial Return variables were widely distributed (refer figures 3, 4, 5 and 6). ROE and ROEG mean results were significantly influenced by outliers, with particularly large negative returns on equity. For the purpose of creating meaningful graphs, two outliers were removed from the ROE and ROEG results graphed overleaf. However, a median ROE of 33.9% and ROA of 14.1% indicates that overall, returns for this sample were relatively high when compared with a Risk Free Rate of Return ranging from around 4.5% to 9.5% over the period (Risk Free Rate approximated by the 90 Day Bank Bill Rate over the three years from 1/1/97 to 31/12/99).

Figure 3:  
**Spread of Return on Equity Results**

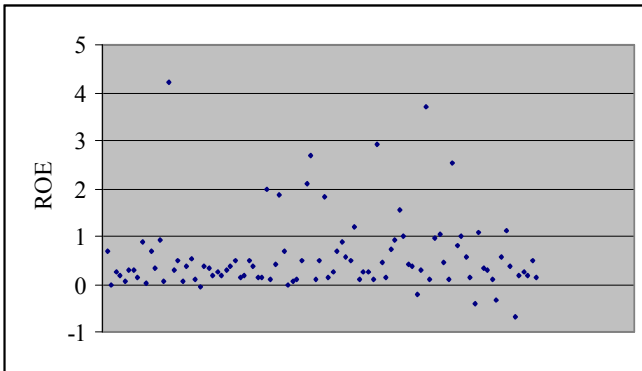


Figure 4:  
**Spread of Return on Assets Results**

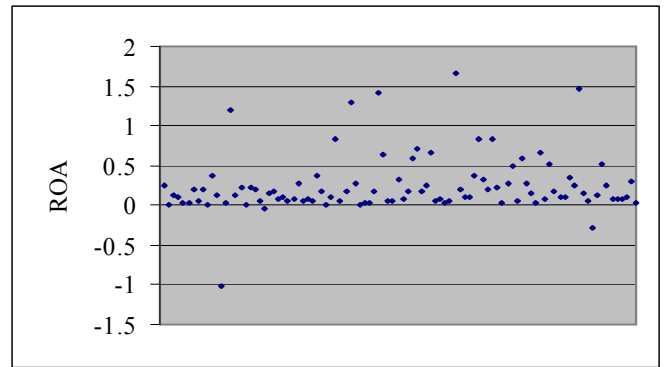


Figure 5:  
**Spread of Return on Equity Gross Results**

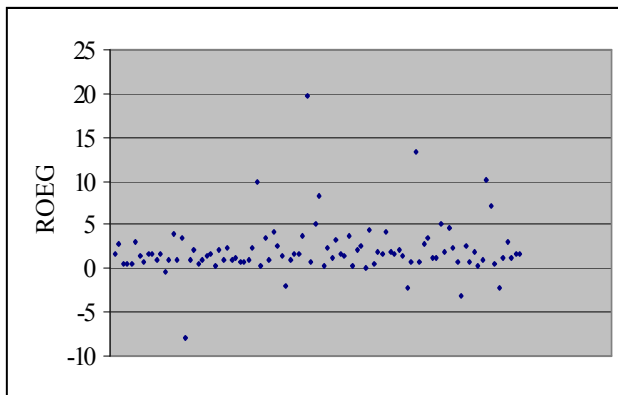
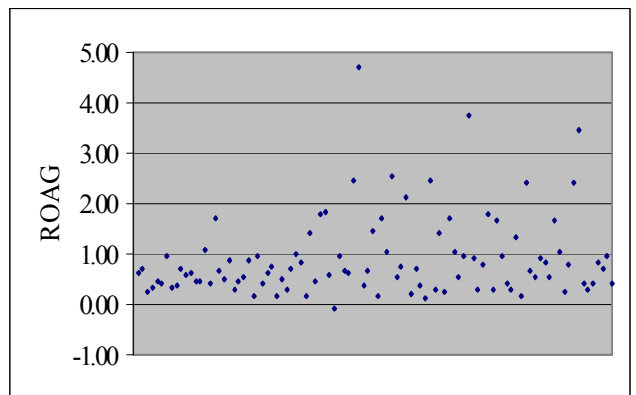


Figure 6:  
**Spread of Return on Assets Gross Results**

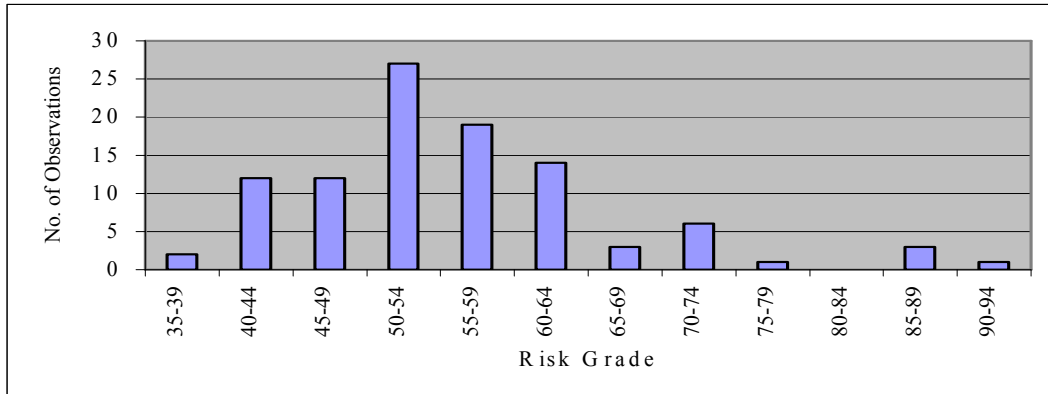




### *Risk Grade*

Risk Grades ranged from 35 (greatest risk) to 92 (least risk). The sample was weighted towards the lower risk grade end (see Figure 7), with a concentration in the 40-64 region.

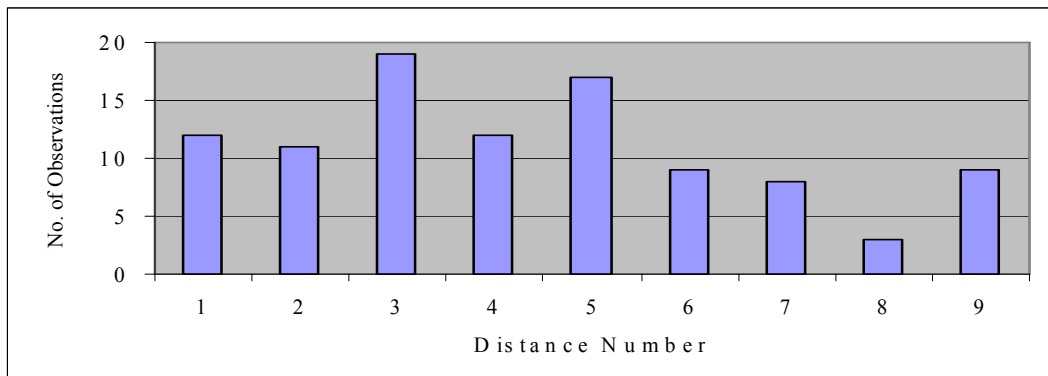
Figure 7:  
*Spread of Sample across Risk Grades*



### *Distance Grade*

Distance Grade was slightly skewed towards the lower (more closely-held) end, however the sample is relatively well spread (see Figure 8). The concentration in the 3-5 area indicates a greater number of firms adopted the structure of an owner-manager holding the majority of control, with assistance from internal non-owner managers for day-to-day management.

Figure 8:  
*Spread of Sample by Distance Grade*

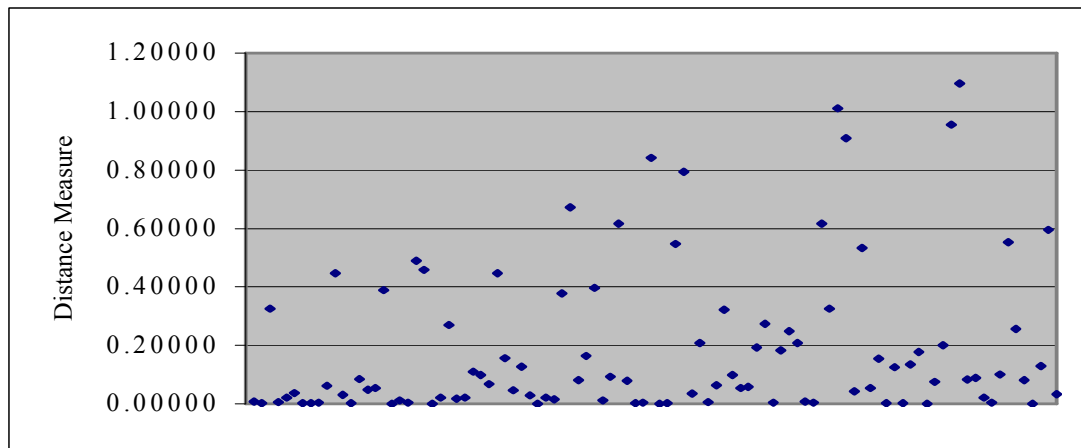


### *Distance Measure*

Distance Measures were skewed towards the lower end (i.e. more distant). Of the observations, 24% had a lifestyle measure of less than 0.01, 41% less than 0.05 and 70% had measures less than 0.20. Even though the resultant measures are small, they are still important considering the measure is relative to the value of the *total assets* of the business. Although we have used an absolute measure in our analysis in order to assess owners lifestyle benefits (whether they be through personally investing in or borrowing from the business), it is interesting to note that of the 100 observations, 75 were actually a negative result. That is, they were making loans to the business in addition to their ordinary equity. Twenty three drew loans from the business and two had a Distance Measure of zero.

Figure 9:

*Spread of Sample by Distance Measure*



### **Correlation between Variables**

Table 4, below, summarises the results of each of the individual Spearman Rank-Order tests and their relative significance. The Spearman rank-order correlation coefficient ( $r_s$ ) is shown, with the z-statistic for each test shown underneath (*in brackets*). Greater  $r_s$  measures imply greater (positive or negative) association.

Table 4:

*Spearman Rank-Order Correlation Tests Between Variables*

	<b><u>Risk Grade</u></b> (least risk = 1)	<b><u>Distance Grade</u></b> (most closely held = 1)	<b><u>Distance Measure</u></b> (most distant = 1)
<b><u>Financial Return</u></b> (greatest return = 1)			
ROE	0.11746956 (1.16880736)	0.234216337 (2.33042312) ****	-0.18080408 (-1.798977886) **
ROA	0.194110394 (1.931374035) **	0.297326101 (2.958357347) *****	-0.366162616 (-3.643272031) *****
ROEG	-0.038348248 (-0.381560246)	0.009608083 (0.095599215)	-0.050555056 (-0.503016451)
ROAG	0.125420047 (1.247913716)	0.135838623 (1.351577232) *	-0.221716172 (-2.206048054) ***
<b><u>Risk Grade</u></b>		-0.128175976 (-1.275334855)	0.107823554 (1.072830817)
<b><u>Distance Grade</u></b>			-0.218059935 (-2.169668961) ***

Key:

	*****	*****	****	***	**	*
Significance Level (two-tailed test)	0.0005	0.005	0.01	0.025	0.05	0.1

*Financial Return Variables*

Return on Assets (ROA) was the return measure that recorded the most significant results with any of the other variables, and the only return measure that had any significant relationship with risk. However, this result was interesting in that greater returns were associated with *less risk*.

Return on Equity (ROE) and Return on Assets Gross (ROAG) recorded significant relationships with both distance measures, however Return on Equity Gross (ROEG) was not found to be significant with any of the other variables. This is consistent with the findings of Vos (1995) who found ROAG to be the measure of return most strongly correlated with risk surrogates.

### *Risk Grade*

Risk Grade was found to be the least useful variable in the explanation of Financial Returns, and was not found to be correlated to either Distance Grade or Distance Measure. As indicated, Risk Grade was positively correlated with one variable, ROA, with higher returns being associated with less risk. Whilst, as previously discussed, the robustness of the bank Risk Grade as a measure of risk could be considered somewhat questionable, the lack of significant correlation of Financial Return measures with Risk Grade adds further weight to the findings of Vos (1992, 1995), that small business risk and financial returns are not related. However, the result does not support the suggestions of some (see Le Cornu et al (1996); Collins and Barry (1988)), that small business returns are related to total (systemic plus firm-specific) risk.

### *Distance Grade*

Significant relationships were found between Financial Return (ROE, ROA, and ROAG) and Distance. ROA returned the greatest correlation and most significant result. The test insinuates an association between more closely-held firms and greater Financial Returns. This supports the agency theory prediction that those firms likely to have more prevalent small firm characteristics (those most closely held), achieve higher returns.

A significant relationship was found between the two distance measures as expected. The negative correlation shows that firms ranking as distant on one of the distance variables were associated with more distant rankings on the other distance variable. This correlation gives weight to the methodology behind the determination of both variables.

### *Distance Measure*

The Spearman Rank-Order tests found a significant correlation between three of the Financial Return measures (ROE, ROA, and ROAG) and Distance Measure. The negative correlation indicated that more closely held firms are associated with greater returns. ROA returned the greatest correlation and the most significant result. This adds further support to the finding above that; the degree of owner involvement in the management of a firm has a bearing on financial returns.

The common elements present in the measurement of ROA and the Distance Measure should be noted. The Distance Measure is represented as net shareholder loans (to or from) the business as a percentage of total assets. Therefore, it is not surprising that a significant relationship is present with the Return on Assets-based financial return measures.

### Median Tests

The Median Test was used to test for differences in Financial Returns across three groups that were segmented according to increasing variable measures of Risk Grade, Distance Grade and Distance Measure. The groups were made up according to Table 5 below.

Table 5:

*Groupings by Risk Grade, Distance Grade and Distance Ratio*

		<b>No. of Observations</b>	
<b>Risk Grade</b>	Group 1 – Risk Grades 35-50	27	100
	Group 2 – Risk Grades 52-55	31	
	Group 3 – Risk Grades 57-92	<u>42</u>	
<b>Distance Grade</b>	Group 1 – Distance 1-3	42	100
	Group 2 – Distance 4-5	29	
	Group 3 – Distance 6-9	<u>29</u>	
<b>Distance Measure</b>	Group 1 – Lifestyle 0 – 0.02211	33	100
	Group 2 – Lifestyle 0.02969-0.16359	34	
	Group 3 – Lifestyle 0.17795-1.09653	<u>33</u>	

The results are summarised in Table 6. A test was also done to verify if Distance Measures were different across the Distance Grade groups, as indicated by the correlation test above.

Table 6:

*Median Tests for Differences in Financial Returns across Groups*

		Risk Grade Groups		Distance Grade Groups		Distance Measure Groups	
<i>Financial</i>		$\chi^2$		$\chi^2$		$\chi^2$	
<b>Return</b>	<i>ROE</i>	1.311	****	4.036	**** ***	2.360	**** *
	<i>ROA</i>	1.339	****	0.726	****	8.046	**** ****
	<i>ROEG</i>	0.461	***	3.379	**** ***	0.178	**
	<i>ROAG</i>	0.165	**	0.069	*	3.683	**** ***
<b>Distance Measure</b>				2.696	**** **		

Key:

<b>Probability that returns across different groups are the same</b>	****	****	****	****	****	***	**	*
	****	***	**	*				
	.01-.02	.10-.20	.20-.30	.30-.50	.50-.70	.70-.80	.90-.95	.95-.98

These results add further weight to the findings above. It is, at least, 50% likely that Financial Returns (of any measure) are the same across the different Risk Grade groups and this supports the findings that Risk Grade and Financial Return are not related. However, the results for the distance-based groups are more significant. The probability that ROE or ROEG are the same across the different Distance Grade groups is only 0.10 – 0.20. For the Distance Measure groups, the probability that ROA is the same is only 0.01 – 0.02, while this probability for ROAG is 0.10 – 0.20. The observations above, with the median increasing for the more closely held firms, support the findings of a positive relationship between returns and closely-held firms.

The Median Test for a difference in the Distance Measure across the different Distance Grade groups found that the probability that the measures are the same was between 0.20 and 0.30. This is consistent with the correlation test above, and again infers that the distance measures are related and, as such, must be measuring some common element(s). This supports the methodology used to measure distance.

### Agency cost control factor tests

Table 7 below shows the results ( $r_s$ ) of Spearman rank-order correlation tests for a relationship between the distance measures and external debt and dividends. Z-scores are shown in brackets.

Table 7:

*Tests for Agency Cost Control Characteristics Across Groups*

	<b>Distance Grade</b> (most closely held = 1)	<b>Distance Measure</b> (least closely-held = 1)
<b>External Debt/Total Assets</b> (highest % = 1)	-0.0669 (-0.6656)	0.1369 (1.3519)
<b>Dividends/NPAT (%)</b> (lowest % = 1)	-0.0773 (-0.7694)	-0.1144 (-1.1386)
<b>Total Disbursements*/OPAT**</b> (lowest % = 1)	-0.1752 (-1.7428)***	0.2035 (2.0245)***

#### Key

*	Total disbursements = Above line shareholder disbursements + Dividends.
**	OPAT = Operating Profit After Tax = NPAT + Above line shareholder disbursements
***	Significant at 0.05 level.

The sample did not exhibit any significant relationship between distance and External Debt/Total Assets. This infers that the use of debt is not a conscious decision by owners to reduce the agency costs of external equity. This supports the findings of Vos and Forlong (1996) who found the agency advantages of debt in small firms to be nil. There was no significant relationship between Dividends/NPAT and distance, which suggests that privately-held firms use neither dividends nor debt to control agency costs. However, the significant correlation found between Total-disbursements-to-shareholders and both distance variables, points to a relationship between greater disbursements and

distance. This is what would be expected if dividends/payments-to-shareholders were used in order to control agency costs by removing financial slack (Ang, 1992). It is likely that above line payments (such as management fees/salaries/shareholder interest) are used in addition to, or instead of, dividends in order to minimise tax liability and this is why a significant relationship is exhibited with total disbursements and not dividends.

The Chi Square Tests performed on the three groups established for each distance variable were used to test if there was a significant difference between the distance groups in the proportion of firms who “pay dividends” or “don’t pay dividends”. Table 8 shows the numbers of firms paying and not paying dividends in each Distance Grade group, while Table 9 shows the numbers for each Distance Ratio group. The expected number occurring (e) is based on the Null Hypothesis that the three groups are equal being true.

Table 8:

*Actual and Expected observations of firms paying dividends - Distance Grade*

*Groups*

	<u>Group One</u>	<u>Group Two</u>	<u>Group Three</u>	<u>Total</u>
<b><u>Pay Dividends</u></b> Actual (n)	19	16	15	50
Expected (e)	21	14.5	14.5	50
<b><u>No Dividends</u></b> Actual	23	13	14	50
Expected	21	14.5	14.5	50
<b><u>TOTAL</u></b> Actual	42	29	29	100
Expected	42	29	29	100

The Chi-Square test statistic ( $\chi^2$ ) of 0.725, resulting from calculations using the tabulated results above, means the probability of the Null Hypothesis being true is 0.50-0.70 for Distance Grade Groups. Therefore there is insufficient evidence to reject the Null Hypothesis that the ratio of dividend paying firms is the same across the three groups.



Table 9:

*Actual and Expected observations of firms paying dividends – Distance Measure*

*Groups*

		<u>Group One</u>	<u>Group Two</u>	<u>Group Three</u>	<u>Total</u>
<b><u>Dividends</u></b>	Actual (n)	21	16	13	50
	<i>Expected (e)</i>	<i>16.5</i>	<i>17</i>	<i>16.5</i>	<i>50</i>
<b><u>No Dividends</u></b>	Actual	12	18	20	50
	<i>Expected</i>	<i>16.5</i>	<i>17</i>	<i>16.5</i>	<i>50</i>
<b><u>TOTAL</u></b>	Actual	33	34	33	100
	<i>Expected</i>	<i>33</i>	<i>34</i>	<i>33</i>	<i>100</i>

The  $\chi^2$  of 4.02 for the Distance Measure group (calculated using the results in Table 8) indicates only a 0.10 - 0.20 probability of the groups having the same proportions of dividend paying firms. Therefore, there is a likelihood of a higher proportion of firms paying dividends in Groups 1 and 2 (the less closely-held firms).

When combined, the above results present a mixed picture. On the one hand, Distance Grade does not seem to relate to the number of firms paying dividends, but on the other hand, the Distance Measure results show that less-closely held firms (i.e. more distant firms) are more likely to pay dividends. It should however be noted that neither of these results are strong results, creating the possibly that as far as a relationship between dividends and distance is concerned, the results are inconclusive.

Table 10:

*Wilcoxon Signed-Rank Tests for Distance Grades of 1-4 versus 5-9. .*

	<u>ROE</u>	<u>ROA</u>	<u>ROEG</u>	<u>ROAG</u>
<b><u>Z value</u></b>	-0.357	0.022	-0.537	0.056
<b><u>P value</u></b>	0.183	0.093	0.969	0.263

The Wilcoxon Signed-Rank Tests returned positive differences for both ROA and ROAG. That is, the ROA and ROAG of the firms with Distance Grades of 1-4 (inclusive) tended to be higher than those firms with Distance Grades of 5-9 (inclusive). This indicates that more closely held firms utilized their assets more efficiently. However, the differences were negative for ROE and ROEG, which means that, overall, the firms with Distance Grades of 5-9 had better equity returns. This is opposite to what was expected.

## **6.0 CONCLUSIONS**

The results presented in this report lead to a number of interesting conclusions. This study failed to find any significant relationship between financial returns and total risk (as measured by the bank's risk grading system). Only ROA recorded a significant relationship with Risk Grade, and even then this was relatively weak and opposite to the expected sign. The variability of the accounting based returns (including the non-leveraged ROA and ROAG measures) infers that any measure of risk used in modeling these returns must be comprehensive.

However, it should be noted that there is a "dual hypothesis" problem inherent in this study. Although the risk factor is being tested, one cannot say that the accounting returns assumed are the correct measures of financial return. Despite this, the fact that no significant relationship with risk was found is important. It may be appropriate to seek further support for these findings by contrasting them with findings based on cash flow measures of return.

This paper reinforces previous studies (Vos (1992, 1995)) making it difficult to disregard the lack of correlation found between risk and return in small business empirical studies. Risk based return models, including the CAPM, may be heading in the wrong direction. Along with this, both distance variables were more closely related to Financial Returns than the Risk Grade. Both variables point to more closely-held firms being associated with greater ROA, ROE and ROAG. This affirms the agency theory explanation of Ang

et al (2000) that agency costs increase as owners of a firm become more distant from the management of that firm.

There is also some evidence to suggest that owners of more distant firms take action to prevent agency costs. No significant relationship was found between the use of debt and distance (supporting Vos and Forlong's (1996) findings that small firms use debt only out of necessity). However more distant firms were associated with greater disbursements of operating profit to their shareholders. An explanation could be that owners of more distant firms do not trust their managers with excess funds, so they keep the amount of funds available to managers to a minimum through disbursements to themselves.

The prevalence of a relationship between financial returns and distance, suggests that the development of a new small firm model of returns is valid and necessary. This is re-iterated by the lack of any risk/return relationships found. Alternatives to risk-based models should be pursued. In particular, modeling centered on agency theory and the degree of owner involvement in business management should be considered. Further research on financial return modelling for small businesses could be built around the form:

$$\text{Expected Return} = f(\text{Risk Free Rate, Distance Measure})$$

where: Distance Measure is greater for more closely held firms with a single owner/manager and lower agency costs structure along with smaller (or negative) for firms with a number of external stakeholders that has implicitly higher agency costs involved.

Analysis of alternative measures of return should be examined in addition to the accounting measures used in this research. By contrasting the results of this study with those obtained using alternative measures of return, we further insight would be gained into the appropriateness of risk/return models in finance theory.

## 7.0 REFERENCES

- Ang, J. (1992). On the Theory of Finance for Privately Held Firms. *Journal of Small Business Finance*, 1(3), 185 – 203.
- Ang, J., Cole, A. & Lin, J. (2000). Agency Cost and Ownership Structure. *Journal of Finance*, 55(1), 81 – 106.
- Ball, X & Brown, X. (Autumn 1969). Portfolio Theory and Accounting. *Journal of Accounting Research*, 300 – 323.
- Black, F., Jensen, M.C. & Scholes, M.S. (1972). The CAPM: some empirical tests, *Studies in the Theory of Capital Markets*. New York: Praeger.
- Collins, R. and Barry, P. (1988). Beta-Adjusted Hurdle Rates for Proprietary Firms. *Journal of Economics and Business*, 40(2), 139-146.
- Fama, E. & McBeth, J. (1973). Risk, return and equilibrium: Some empirical tests. *Journal of Political Economy*, 8, 607-636.
- Fama, E. & French, K. (1992). The Cross-Section of Expected Stock Returns. *Journal of Finance*, 47(2), 427 – 466.
- Fama, E. & French, K. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33, 3 – 56.
- Haugen, R. (1999). *The New Finance* (2<sup>nd</sup> ed). New Jersey: Prentice Hall.
- Jensen, M. & Meckling, W. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3, 305 – 360.
- Kothari, S., Shanken, J., & Sloan, R. (1995). Another look at the cross-section of expected stock returns. *Journal of Finance*, 50, 185 – 224.
- Le Cornu, M., McMahon, R., Forsaith, D. and Stanger, M. (1996). The small enterprise financial objective function, *Journal of Small Business Management*, 34(3), 1-12.
- McConaughy, D., Matthews, C., & Fialko, A. (2001). Founding family controlled firms: Performance, risk, and value. *Journal of Small Business Management*, 39(1), 31-49.
- McDowell, C. (1995). Small Business Objectives: An Exploratory study of NSW Retailers. *Journal of SEEANZ*, 3(1,2) 30 – 2.
- Sharpe, W. (1964). Capital Asset Prices: A Theory of Market Equilibrium Under the Conditions of Risk. *Journal of Finance*, 19, 425 – 442.

Vos, E. (1992). Differences in Risk Measurement for Small Unlisted Businesses. *Journal of Small Business Finance*, 1(3), 255 – 268.

Vos, E. (1995). Risk, Return and Price: Small Unlisted Businesses Examined. *Journal of SEEANZ*, 3(1,2), 112 – 20.

Vos, E. & Forlong, C. (1998). The Agency Advantage of Debt Over the Lifecycle of the Firm. *Entrepreneurial and Small Business Finance*, 5(3), 193 – 211.