

A Cluster Analysis Approach to Financial Structure in Small Firms in the United States

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ABSTRACT

This paper uses data from the 1993 National Survey of Small Business Finances sponsored by the Board of Governors of the Federal Reserve Board and the U.S. Small Business Administration to explore the equity and debt structure of small firms in the United States. Initially the paper provides descriptive detail of financial structure that is then used in a cluster analysis process to help identify a range of possibly "typical" financial structures. Results are also presented of exploratory analysis that seeks to identify associations with a range of variables posited to influence such structures. Included are industry, age, profit (measured in absolute and relative terms), sales growth, asset structure, and size (measured by sales and employee numbers). Results are generally supportive of the general agency cost explanations of financial structure in small firms.

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Introduction

Small firms are not an homogenous group. As is the case with many of the unique characteristics of small firms they do not appear to exhibit a high level of similarity in their capital structures. Various theoretical approaches, including pecking order frameworks and variations on agency theory, indicate that many variables might influence the final debt-equity mix of a business. Past studies have identified this possible diversity of different capital structures and of variables which influence those structures. Few studies, however, provide any indication of consistent patterns that may exist. It is the purpose of this paper to report on exploratory analysis that seeks to identify effective patterns of alternative capital structure in small firms and to analyse those structures against possible influencing variables.

The paper commences by providing a background of the expectations that exist regarding financial structure, followed by a review of theories used to explain apparent differences and a discussion of potential influences on that capital structure. The research method is then outlined before results are presented and discussed. Concluding comments reflect on limitations of the study and identify implications of the findings.

Expectations re Financial Structure

Financial structure is an important decision in firms and is related to the firms production activities (Vickers, 1970). To fund production (or services), financial resources are required. These resources are either in the form of debt, the cost of which is the interest paid, or in the form of equity which has a cost represented by the providers required rate of return (Reid, 1996). As both types of financial resources carry a cost, a reasonable expectation exists that there is an optimal mix of debt and equity that minimises the total cost.

The traditional approach (Modigliani and Miller, 1958, 1963) to guiding the optimal financial structure concludes "that firms should use as much debt as possible" (Chittenden *et al.*, 1996, p.59) on the principle that generally debt has a lower cost than equity. This approach suggests that, under conditions of perfect markets and cost-less information access, modifying a firm's capital structure does not change the firm's value or owner's wealth (Romano, *et al.*, 2000, p.288). However, there is considerable evidence that the outcome reflected in such a proposition is not evident in practice and that small firms especially seem to develop structures that have a minimum, rather than a maximum, amount of debt (Chittenden *et al.*, 1996, p.59).

Concern with the possibility that there may be something different about the financial structure of small firms was expressed in the early identification of a "finance gap" (MacMillan Committee, 1931). The nature of differences became more apparent in the studies of Bates (1971), again in the United Kingdom. These studies found that "small firms, compared to large, tended to be more self-financing, had lower liquidity, rarely issued stock, had lower leverage, relied more on bank financing and used more trade credit and director's loans" (Chittenden *et al.*, 1996, p.60). Subsequent studies and "an increased interest by policy makers, regulators, and academics" (Berger and Udell, 1998, p.614), especially with respect to growing businesses, have maintained concern with such issues. The extent of concern is further captured by the latter authors' additional comments:

At the core ... are questions about the type of financing growing companies need and receive at various stages of their growth, the nature of the private equity and debt contracts associated with this financing, and the connections and substitutability among these alternative sources of finance (Berger and Udell, 1998, p.614)

In deed, the nature of their private equity and debt contracts may provide a mechanism to enhance understanding of the business attitudes and managerial behaviour of small firms. The

apparently irrational economic behaviour of maximising attributes other than financial wealth that is so often associated with the owners of small firms (Gibson, 1993) may be better understood alongside an enhanced understanding of their finance structure choices.

Explanations for Small Firm Finance Structures

The genesis of an enhanced understanding of small firms financial behaviour has emerged in the various attempts made to explain the apparent anomalies of small firm capital structure. The major attempts, discussed below, can be classified as the life cycle approach; the pecking order framework; a trade-off choice framework; and, agency theory.

The life cycle approach suggests that access to finance is dependent on the stage of development of the firm. New firms rely on owners' initial resources because they are, arguably, not informationally opaque (Berger and Udell, 1998, p.622). Survival and moderate growth opens access to short term debt that remains a continued source of funds because of limited access to long term debt and/or equity. Rapid growth firms are also forced to accept the poor liquidity circumstance short-term debt reliance creates until they find themselves in a position to enter the equity market (Chittenden *et al.*, 1996, p.61). This explains an apparent preponderance of short-term debt finance in many small firms and also suggests a changing target (or optimal) debt-equity ratio in a firm. Allied to the life cycle approach is recent work suggesting a relationship between managerial strategy and capital structure (Jordan, *et al.*, 1998).

The pecking order framework was initially proposed by Myers (1984) and suggests "firms finance their needs in a hierarchical fashion, first using internally available funds, followed by debt, and finally external equity" (Chittenden *et al.*, 1996, p.61). The preference is a reflection of the relative costs of the available sources of funds, possibly as a consequence of informational opacity, and an aversion to the use of external equity. It emphasizes friction based on potential

information asymmetry's (Chirinko and Singha, 2000). Of central concern appears to be a concentration by small firms on "sources of finance that minimise intrusion into ... business" (Lopez-Gracia and Aybar-Arias, 2000, p.56). Consequently firms do not have an optimal debt-equity ratio but rather the "debt-equity ratio varies over time, depending on [the] firms' need for external finance" (Romano, *et al.*, 2000, p.289).

Trade-off choice explanations explore frictions between costs of financial distress and the tax deductibility of the costs of debt finance (Chirinko and Singha, 2000). It suggests firms trade-off "several aspects, including the exposure of the firm to bankruptcy and agency costs against the tax benefits associated with debt use" (Cassar and Holmes, 2001, p.4). Firms anticipate higher finance costs because of potential liquidation etc. and consequently avoid debt. Offsetting these considerations is that tax benefits encourage debt use by firms (tax deductibility of interest) and the final capital structure adopted by a firm will be a trade-off between these tax benefits and costs associated with bankruptcy and agency. This implies that there is a target (or optimal) debt-equity ratio for a firm (Romano *et al.*, 2000, p.289) that changes only as benefits and costs alter over time.

Agency theory is in part incorporated into the explanations already discussed above. It extends consideration to the information asymmetry, costly state verification, moral hazard and adverse selection problems in relationships between small firms and finance providers (Berger and Udell, 1998, p.661). Fixed cost elements of transactions and the closely held nature of small firms are, in most circumstances, likely to make the costs of solving such problems higher for small firms. While debt contracts might appear optimal after inside finance sources are exhausted, there are moral hazard conditions that lead some firms to directly move to third party external equity (Berger and Udell, 1998, p.661). There are also suggestions that a contributing factor to these

problems is “the poor quality of financial information produced by smaller companies” (Lopez-Gracia and Aybar-Arias, 2000, p.56) that increases monitoring costs in agency circumstances. The debt-equity mix for a firm is therefore a function of real and perceived agency cost relationships.

The primary implication of these diverse explanations of small firm capital structure is reasonably clear although not excessively enlightening. Small firms will adopt a target debt-equity ratio that is influenced by their current circumstances. As suggested by Berger and Udell (1998, p.626), firms with different profiles are likely to be financed with different combinations of debt and equity. There is no "universal" optimum in respect of capital structure, although the expectation from the preceding discussion seems to point small firms toward a high reliance on short-term debt and little or no third party external equity. These expectations are reflected in aggregate results reported by Berger and Udell (1998) and are summarised in Table 1. The results in Table 1 are drawn primarily from the analysis of a large sample database obtained from a national survey of small business finances collected in 1993 (the same database that is used in the analysis that follows in this paper). Berger and Udell (1998) caution that the results may not be completely accurate or consistent and should be considered as rough estimates only intended to give a general idea of where small businesses receive their funding (Berger and Udell, 1998, p.618).

Insert Table 1 about here

Table 1 results suggest that small firms have an approximate equal split between debt and equity and rely mostly on principal owner equity and bank and trade credit debt. However the aggregate outcome reflected in the table is not expected to apply to all firms. Such results

represent small firms as an homogenous group and consequently "mask considerable heterogeneity among types of firms and the funding they receive" (Berger and Udell, 1998, p.626). A more appropriate anticipation from the theoretical perspectives previously discussed is that different circumstances will influence different capital structure decisions. Accordingly there might be a wide variety of financial structures that differ significantly from the aggregate results presented in Table 1.

Influences on Capital Structure

Variables often identified as indicative of the circumstances that might influence differences in financial structure include industry, age, profit, asset structure, size, and growth. Less frequently identified but still possibly explanatory variables include risk, tax rates, time, access to capital markets, family control, CEO age, business objectives and business planning.

Industry as an explanatory variable is supported by the equilibrium theory of capital structure which suggests "the economic sector a company belongs to can be an important factor ... when explaining ... financial behaviour" (Lopez-Gracia and Aybar-Arias, 2000, p.57). Sectors with strong tangible asset holdings are expected to have higher average debt levels than is evident in sectors associated with intangible or risky assets. However there has been some controversy and debate concerning the association between industry and debt structure (Jordan *et al.*, 1998, p.3). This debate has ranged from comments suggesting differences across industries but consistency within industries (Harris and Raviv, 1991) to claims that industry is not as important as firm specific aspects (Balakrishnan and Fox, 1993). Jordan *et al.* (1998) support this latter view, while Cassar and Holmes (2001), Hall *et al.* (2000), Lopez-Gracia and Aybar-Arias (2000), Romano *et al.* (2000), Michaelas *et al.* (1999) and Bennett and Donnelly (1993) find some support for an association.

The possible influence of age is consistent with stage of growth explanations. Because older firms have most likely achieved a well-established source of internal equity they are expected to have lower debt. Greater maturity is also likely to be associated with a greater acceptance of external equity. Berger and Udell (1998, p.625) support the lower debt proposition using their classification of firms as "infants" (0 to 2 years), "adolescents" (3 to 4 years), "middle-aged" (5-24 years), and "old" (25 years or more). The association between lower debt and age is also supported by Romano *et al.* (2000), Michaelas *et al.* (1999), and Chittenden *et al.*, (1996).

Higher profit being associated with lower levels of debt is anticipated because the costs of outside capital are greater than the costs of internal sources, and because more profitable firms have greater internal funds they can reduce reliance on external debt. This association is supported by Cassar and Holmes (2001), Michaelas *et al.* (1999), Chittenden *et al.* (1996), and Bennett and Donnelly (1993) although Jordan *et al.* (1998) suggest profitability may not be important and Hall *et al.* (2000) report a negative association with short-term debt.

The pecking order framework explanation would suggest growth, that normally cannot be funded from internal sources would lead to higher levels of debt. An association between growth and higher debt is not supported by Jordan *et al.* (1998) but is strongly supported by Michaelas *et al.* (1999) and gains only weak support from Cassar and Holmes (2001). Chittenden *et al.* (1996) suggest growth is only associated with capital structure when it is combined with lack of access to the capital market and Hall *et al.* (2000) find a positive relationship only with short term debt.

Association with asset structure is anticipated because the degree to which assets are tangible and generic increases a firms ability to reduce the magnitude of potential losses financiers might incur and consequently improves access to outside finance and lower finance costs (Cassar and Holmes, 2001, p.8). Thus firms with higher absolute values of tangible assets might be expected

to support more debt. Asset structure associations are supported by Cassar and Holmes (2001), Michaelas *et al.* (1999), Jordan *et al.* (1998), Chittenden *et al.* (1996), and Bennet and Donnelly (1993). Hall *et al.* (2000) indicate the direction of the association differs between long-term and short-term debt.

Generally smaller firms are expected to have less debt. This is because higher costs in resolving information asymmetry problems with financiers discourage the use of outside finance. As suggested by Cassar and Holmes (2001, p.7): smaller scale financing if used is likely to lead to relatively higher transaction costs; the marginal effects of market access will place some finance options outside the available set for smaller firms; and, relative costs of bankruptcy are perceived as an inverse function of size. Overall, size as an explanatory variable is supported when measured by total assets by Cassar and Holmes (2001), Hall *et al.* (2000), Michaelas *et al.* (1999), and Chittenden *et al.* (1996). It is also supported, when size is measured by sales, by Lopez-Gracia and Aybar-Arias (2000) and Bennett and Donnelly (1993), although rejected when using a similar measure by Jordan *et al.* (1998). Romano, *et al.* (2000), also supports an association when a range of variables, including employee numbers, measures size. There is also a tendency for the association with size to be negative when short-term liabilities are used to represent leverage (Cassar and Holmes, 2001; Michaelas *et al.*, 1999; and Chittenden *et al.*, 1996). These results could be consequence of quasi equity and debt confusion. This is an outcome of the financial intertwining of owners and their businesses that is characteristic of many small firms (Ang, 1992). As Berger and Udell (1998, p.626) suggest much external debt is not external in an economic sense. Many loans to small business are personally guaranteed and often backed by personal asset collateral. From the individual perspective the debt is more

appropriately considered a personal liability to support an equity investment in the small firm. This confusion adds to the difficulty of analysing true relationships.

Other associations examined have included risk (Cassar and Holmes, 2001; Michaelas *et al.*, 1999; Jordan *et al.*, 1998; Bennet and Donnelly, 1993), tax rates (Michaelas *et al.*, 1999; Jordan *et al.*, 1998), expectations that gearing ratios would vary over time (Michaelas *et al.*, 1999), and possible influences of differing access to the capital market (Chittenden *et al.*, 1996).

Studies such as those discussed above (Cassar and Holmes, 2001; Hall *et al.*, 2000; Romano *et al.*, 2000; Lopez-Gracia and Aybar-Arias, 2000; Michaelas *et al.*, 1999; Jordan *et al.*, 1998; Chittenden *et al.*, 1996; Bennett and Donnelly, 1993) provide valuable insight into small firm capital structure. However, they tend to present aggregate results and do not develop effective patterns of alternatives. There is a strong element of confusion created by the number of feasible alternate explanations and the range of potential influencing variables. Very few studies have sought to shape the aggregate results into potentially defining common structures, although Kotey (1999) is a notable exception. In part overcoming these deficiencies is the purpose of this paper.

Research Method

The results that are reported in this paper had two research questions guiding the outcomes:

1. Are there consistent identifiable patterns of capital structure within the small firm sector?
2. Are there identifiable variables that are associated with these patterns of capital structure?

Data used in the analysis was accessed from the 1993 National Survey of Small Business Finances sponsored by the Board of Governors of the Federal Reserve Board and the U.S. Small Business Administration (Board of Governors of the Federal Reserve, 1994). [Data from a more recent survey (1998) is now available and is being analysed in a similar manner.] As Berger and

Udell (1998, p.617) suggest the informational opacity that makes the study of small firm finance of interest is also a contributing factor to the difficulties of such study. Contracts are generally kept private, there is no trade in securities, and financial details are not publicly available. Unlike the study of large firm finance issues there are often no major data sets available. Notwithstanding any potential limitations of the data, access to a large database such as this presents a major breakthrough in the study of small firm capital structure.

The initial number of cases available in the database was 4637. The database was constructed from responses to a survey of a stratified random sample of firms with fewer than 500 employees (Scherr and Hulburt, 2001, p.91). Because of possible differing agency etc. relationships in firms with separated management and ownership, firms that were not managed by a principal owner were eliminated, leaving a sample of 3751 cases as the initial basis for the analysis reported in this paper.

The data was then modified in the following ways. Firstly, the amount of total bank etc. loans was reduced by separately identifying loans from principal owners from a different section of the database. Second, total equity was split into owner manager equity and other equity by using a proportional response available in the data set. For each case, the total of each debt and equity category was then divided by total assets to determine the overall proportion of funds from each identified source. Descriptive analysis of these proportions identified statistical outliers that may have influenced interim outcomes so results were smoothed by a process of selective outlier elimination (usually one-tailed and always beyond the 1 and/or 99 percentile levels). This reduced the number of cases to 3525.

Cluster analysis was then performed on the computed fund proportions to ascertain if there were any distinguishable financial structures. The SPSS statistical package was used for analysis.

Following the software providers recommendation, K-means clustering was applied as this is the most appropriate procedure when there is a large number of cases (SPSS Inc., 1998, p.293). After several variations were considered, a solution in which 4 clusters were clearly identifiable was selected.

Finally membership of each cluster was analysed against a range of variables posited to have a potential influence on financial structure. The variables used were selected on the basis of having been used in prior studies and that reasonable measures (or proxies) were readily available in the database. The intent was to provide an exploratory overview rather than, at this stage of the research, to attempt an in depth analysis. Accordingly analysis was restricted to industry, firm age, profit measures (absolute annual profit and profit as a percent of sales), growth (in sales over a two year period), asset structure (non-current assets as a proportion of total assets), and size (measured by total sales and number of employees).

Results

An aggregate summary is presented in Table 2. These results vary from those identified by Burger and Udell (1998) and reproduced in Table 1 despite the same database being used for each study. Reasons for this include the elimination of outliers and managed firms from this study. Accordingly in Table 2 debt is higher (and equity lower) than reported by Berger and Udell (1998), although principal owners equity is not markedly different.

Insert Table 2 about here

The principal clusters identified and the dominant fund sources associated with each cluster are summarised in Table 3.

Insert Table 3 about here

The first cluster has been described as *Excess Debt* because funding sources from debt exceed the value of assets by about 160%. This implies negative equity in the form of accumulated operating losses and/or excessive distributions of profits. It might also reflect the presence of quasi debt/equity distinctions because the debt may be shown as business debt but be secured against personal collateral and partially used for personal investment. The second cluster is described as *Predominantly Debt* for the obvious reason that, on average, debt represents the major source of funding (65% bank etc. loans and 14% accounts payable and other creditors). Total equity is just below 20%. The next cluster appears to have an even spread of fund sources and is referred to as *Combined Debt and Equity*. Predominant debt is short-term accounts payable and other current liabilities (just under 30%) supplemented by loans from banks etc. at around 12%. The equity of around 55% is evenly split between that from principal owners and that from other equity sources. The final cluster is described as *Predominantly Principal Owner Equity* because of the strong reliance (around 75%) on that source of funds. This is complemented by about 13% from trade credit and 11% bank loans. These results are similar to those reported by Kotey (1999) who, using a smaller single industry sample, identified three clusters described as debt avoiders, debt and equity users, and debt users.

Further understanding of possible influencing variables associated with the principal clusters was also attempted. This analysis was performed for the exploratory results that are reported in this paper on an unrelated variable basis and results are presented in Tables 4 and 5.

Results for the categorical variable industry sector are presented in Table 4. There appears to be a statistically significant difference in cluster membership according to industry sector. Most

pronounced is the above average representation of the *predominantly principal owner equity* cluster in the services sector that was expected given the low level of capital investment required in many service firms and the pecking order framework suggestion that owner equity is the most preferred source of funds. Generally these results support the industry effect reported by Cassar and Holmes (2001), Hall *et al.* (2000), Lopez-Gracia and Aybar-Arias (2000), Romano *et al.* (2000), Michaelas *et al.* (1999) and Bennett and Donnelly (1993).

Insert Table 4 about here

Results capturing the continuous variables tested are included in Table 5. As well as simple parametric ANOVA tests, the analysis also relied on non-parametric tests (Kruskal-Wallis and median test) to confirm results were robust for the anticipated difficulty of assuming distribution comparability. To support the interpretation of the results in Table 5, homogenous subsets produced in association with a Tukey test (not reproduced) have been used.

Insert Table 5 about here

Despite variability across clusters, the results for the absolute measure of profit were not statistically significant when using the parametric test but were significant when using the non-parametric tests. The profitability (profit divided by sales) measure was statistically significant using the non-parametric tests but the parametric test produced only a moderate result. It appears that firms in the *working owner equity* cluster achieve higher levels of profitability (but not higher absolute profits). This is predicted by the proposition that profitable firms have more

internal funds reflected in equity and consequently lower debt (Cassar and Holmes, 2001; Michaelas *et al.*, 1999; Chittenden *et al.*, 1996; and Bennett and Donnelly, 1993).

Age of the firm was statistically significant when using all three tests. Older firms are found in the *combined debt and equity* cluster and the *predominantly principal owner equity* cluster. These results are generally supportive of the association reported by Berger and Udell (1998), Romano *et al.* (2000), Michaelas *et al.* (1999), and Chittenden *et al.* (1996).

The asset structure (non-current assets as a proportion of total assets) was also statistically significant for all three tests used. As expected from prior study results (Cassar and Holmes, 2001; Michaelas *et al.*, 1999; Jordan *et al.*, 1998; Chittenden *et al.*, 1996; and Bennet and Donnelly, 1993), firms with higher asset structure measures (more tangible assets) were associated with the *predominantly debt* cluster. The *combined debt and equity* cluster, which had the highest average levels of short term (accounts payable and other current liabilities) debt was associated with the lowest asset structures supporting Hall *et al.*'s (2000) assertion that the association differs between long-term and short-term debt.

Both measures of size (sales and employment) were also statistically significant for all three statistical tests. Smaller firms were associated with the *predominantly principal equity* cluster while larger firms tended to be in the *combined debt and equity* cluster. This association supported the results of many other studies indicating a strong association between size and capital structure (Lopez-Gracia and Aybar-Arias, 2000; Romano, *et al.*, 2000; and Bennett and Donnelly, 1993).

Growth (measured by the change in annual sales over two years) did not reveal any consistent statistically significant results. This reflects the confusion in prior results where some studies

support an association between growth and greater debt levels (Michaelas *et al.*, 1999 and Cassar and Holmes, 2001) while others do not (Jordan *et al.*, 1998).

Discussion

The analysis in this paper suggests there are four categories of small firms with regard to their dominant source of finance. Each is clearly different from all the others and each represents a grouping anticipated by theoretical considerations.

The *excess debt* cluster, while not dominant, reflects firms that appear to have debt well in excess of the firm's asset values. The cluster seems to be over represented in the finance insurance and real estate industry sector and has low levels of profitability. Firms in the cluster may be younger (although not the youngest) and they have low levels of profitability.

The *predominantly debt* cluster is associated, as anticipated, with higher asset structure firms and is also associated with large (although not the largest) firms. There appears to be no major industry effect but they do appear to be the youngest firms and to have lower profit measures.

The *combined debt and equity* cluster tends to be larger and older firms with low asset structure and are more often represented in the manufacturing and wholesale and retail trade industry sectors.

Finally the *predominantly principal owner equity* cluster seems to be mostly associated with higher relative profits while tending to be the smallest firms in terms of size measures despite being among the oldest. They are also more represented in the services and the mining and construction industry sectors and under represented in the manufacturing sector

From a public policy perspective the implications of the findings in this study are that borrowing requirements are not static over time or industry (Michaelas, *et al.*, 1999). To the extent that policy makers seek to address problems in the finance sector they need to be aware of the

different needs of different sectors that are not always identifiable by demographic variables such as industry and age. Also relationships vary between short-term and long-term funding sources.

There are of course limitations in the study. One is a survivorship bias because it is "possible managers in liquidated businesses have handled the need for resources differently from managers in surviving businesses" (Winborg and Landström, 2000, p.242) and liquidated business are not represented in this study. There is also a problem associated with a self-reporting bias as in all survey-based research. Finally, it should be noted that this is an exploratory first cut of the data and many other associations may emerge with more in depth analysis.

Conclusions

This paper presents an exploratory analysis of possible debt structure relationships. It is clear that there are distinct categories based around certain dominant funding sources. These are excess debt, predominantly debt, combined debt and equity, and predominantly principal owner equity. Firm membership in these categories is associated with many simple demographic or performance variables. There are strong associations with industry, profitability, asset structure, age and size but only a weak association with absolute profit and no clear association with growth. Some of these results could be influenced by poor specification of the variables used in the study. Consequently, the true underlying relationship may not necessarily be reflected in the results which paves the way for more detailed study. Notwithstanding these possible limitations, the results clearly identify different finance structures in small firms and support the general nature of theoretical explanations for those differences.

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Table 1		
US Small Business Finance Sources		
(Berger and Udell, 1998)		
	<i>Percentage</i>	<i>Percentage</i>
Sources of Equity		
• Principal Owner	31.33	
• Angel Finance	3.59	
• Venture Capital	1.85	
• Other Equity	12.86	
Total Equity		49.63
Sources of Debt		
• Commercial Banks	18.75	
• Finance Companies	4.91	
• Other Financial Institutions	3.00	
• Trade Credit	15.78	
• Other Business	1.74	
• Government	0.49	
• Principal Owner	4.10	
• Credit Card (individual)	0.14	
• Other Individuals	1.47	
Total Debt		50.37
		100.00
Source: Berger and Udell, 1998, p.620		

Table 2		
Sample Aggregate Capital Structure		
(n = 3525)		
Funds Source	<i>Percentage</i>	<i>Percentage</i>
Debt		
Accounts Payable	14.86	
Other Current Liabilities	5.75	
Loans from Owners	3.11	
Loans from Banks etc.	33.49	
Other Liabilities	0.21	
		57.42
Equity		
Principal Owners	33.64	
Other Equity	8.94	
		42.58
		100.00

Table 3				
Principal Fund Sources - Final Cluster Centres				
Percentage of each fund source				
	<i>Excess Debt</i>	<i>Predominantly Debt</i>	<i>Combined Debt and Equity</i>	<i>Predominantly Principal Owner Equity</i>
N = 3525	273	979	1127	1146
Debt				
Accounts Payable and Other Current Liabilities	45.06	13.59	28.71	12.82
Loans from Banks etc. and Other Liabilities	103.66	65.25	12.41	10.99
Loans from Owners	12.62	2.47	4.02	0.50
Equity				
Principal Owners Equity	-49.21	14.48	28.67	74.64
All Other equity	-12.13	4.20	26.19	1.04
Total*	100.00	100.00	100.00	100.00
*Differences due to rounding				

Table 4					
Industry and Cluster Membership –					
Percentage of each industry grouping in each cluster					
<i>Industry</i>	<i>Excess Debt</i>	<i>Predominantly Debt</i>	<i>Combined Debt and Equity</i>	<i>Predominantly Principal Owner Equity</i>	<i>Sample Total</i>
Mining and Construction	11.4	10.6	13.7	15.2	13.1
Manufacturing	11.4	11.6	16.9	6.9	11.8
Transport and Communications etc.	3.3	4.4	4.6	2.1	3.6
Wholesale and Retail Trade	28.2	28.9	33.9	28.4	30.3
Finance, Insurance and real estate	12.8	8.5	5.9	6.7	7.4
Services	33.0	36.0	25.0	40.8	33.8
Total*	100.0	100.0	100.0	100.0	100.0
Pearson Chi-square = 137.687; p = .000					
*Differences due to rounding					

Table 5
Continuous Variables and Cluster Membership –
Means for each cluster by each variable

	<i>Excess Debt</i>	<i>Predom- inantly Debt</i>	<i>Combined Debt and Equity</i>	<i>Predom- inantly Principal</i>	<i>Sample Total</i>	<u>ANOVA</u>		<u>Kruskal-Wallis</u>		<u>Median Test</u>	
						F	p	Chi- square	p	Chi- square	p
Profit (\$'000)	8.75	-70.00	249.66	73.70	85.02	1.121	.339	67.433	.000	45.959	.000
Profitability (%)	6.56	7.43	8.71	14.35	10.02	4.972	.002	98.105	.000	122.491	.000
Age	13.09	12.57	16.78	15.08	14.77	21.128	.000	75.748	.000	51.844	.000
Asset Structure (%)	47.71	53.38	38.61	44.43	45.31	40.419	.000	115.789	.000	105.259	.000
Size - Sales (\$'000)	1,990	3,644	4,698	941	2,974	29.225	.000	412.010	.000	321.672	.000
Size - Total Employment	21.53	28.70	42.28	10.42	26.54	65.766	.000	461.174	.000	374.098	.000
Growth - 2 yr Sales (%)	-3.27	-0.46	3.40	20.31	7.47	0.837	.473	0.913	.822	1.362	.714