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Fitzsimmons, Jason R. (2007) Making Do With Less: Firm Growth And Financial Performance Under Resource Constraints. In *Proceedings Babson College Entrepreneurship Research Conference (BCERC)*, pages pp. 1-13, Madrid, Spain.

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MAKING DO WITH LESS: FIRM GROWTH AND FINANCIAL PERFORMANCE UNDER RESOURCE CONSTRAINTS

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ABSTRACT

This paper examines the financial resourcing behaviour of a sample of high growth firms. Firms growing faster than generated internally funds must finance this growth through external means or alternatively adopt bootstrapping measures aimed at increasing efficiency in working capital management. For a sample of manufacturing firms, we find that consistent with the pecking order theory; high growth firms have a preference for internal rather than external finance. More specifically, we find that the short term growth in sales to be largely financed through increased inventory turnover along with a reduction in gross margins. This raises questions about the longer term sustainability of this growth.

INTRODUCTION

It has long been suspected that the growth of small firms is constrained by internal finance (Carpenter & Petersen, 2002). Prior research has also found that many small firms find it difficult to raise outside finance and instead have a tendency to finance growth predominantly through retained earnings (Carpenter & Petersen, 2002). In addition, empirical evidence has shown that internally generated funds are the major source of investment funds used by small businesses and that banks are the major external source (Winborg & Landstrom, 2001). Given this, it has been suggested that firms' should maintain sufficient liquidity or financial slack in order to deal with unexpected growth or failure in the marketplace (Smith & Smith, 2004). Financial slack in this respect includes cash and other liquid assets, cashflow from operations, and access to debt markets or bank financing (Brealey, Myers, & Allen, 2006).

The role of financial slack in explaining firm growth and performance has been the subject of continuing debate in the literature. All else being equal, prior research has assumed that more resources are usually better than less for promoting firm growth (Mishina, Pollock, & Porac, 2004). Cyert and March (1963) suggested that slack or excess resources (in the absence of agency effects) can have a positive effect on firm performance. This contrasts strongly with more recent research suggesting a positive effect of resource constraints on firm growth and performance through the more efficient use of available resources via resource leveraging behaviour such as "bootstrapping" or "bricolage" (e.g. Baker

& Nelson, 2005; George, 2005; Mishina et al., 2004). Mishina et al. (2004) for example, considered two modes of growth (product development and market development) and considered the impact of financial and human resource slack on firm growth, finding that resource slack does not always promote growth. In a similar manner, George (2005) found evidence that the performance (gross profit) of privately held firms might be enhanced if resource demands exceed availability. To further complicate the issue, Baker and Nelson (2005) further point out that not all forms of bricolage or resource leveraging makes firm growth possible, suggesting that some forms of resource leveraging may enhance growth while other forms may lock firms into a non-growth trajectory.

Given the significant implications of these findings for entrepreneurship research and practice, this paper investigates the relationship between different forms financial resourcing and the associated influence on firm growth and performance. In particular, the study investigates the resourcing behaviour of high growth manufacturing firms, with growth rates exceeding the rates achievable through internally generated funds. In doing so, the paper aims to make two contributions. Firstly, the paper investigates how resource constraints impact on the growth of a sample of entrepreneurial high-growth firms and secondly, by considering several forms of financial slack, the paper contributes to our understanding of how various bootstrapping measures impact on firm growth and performance.

As smaller firms are typically more likely to be resource constrained, that these firms may have a tendency to “bootstrap” available resources in order to achieve their objectives as suggested by Bhide (1992). In addition, a firm considering embarking on a growth trajectory must take into consideration how that growth is to be financed. An important factor often overlooked is the concept of the sustainable growth rate, which is the maximum rate at which the firm can grow before needing to consider external financing (Smith & Smith, 2004). Where firm financial resource demands exceed financial resource supplies, a firm attempting to grow from internal means must adopt measures such as reducing cash cycles (hence working capital requirements) or improving margins via price increases or cost cuts (Churchill & Mullins, 2001). By examining sustainable growth rates inferred from a firm’s financial data and comparing this to actual growth rates achieved in the subsequent year, we are able to determine the degree of financial resource excess or deficiency in a given year and uncover the underlying financial resourcing behaviour of the firm. In addition, by examining the patterns of change in key financial data we uncover valuable information on the resource leveraging and financing behaviour of an individual firm and determine the extent to which a firm makes use of financial bootstrapping techniques.

THEORY

Financing Firm Growth

Pecking order theory suggests that firms prefer internal finance to external finance and where external finance is required have a preference for debt over equity. Indeed, it has long been suggested that the growth of most firms and small firms in particular is constrained by the available quantity of internally generated finance (Carpenter & Petersen, 2002). Evidence also suggests that a significant proportion of total investment by firms (including working capital investment) has been through internally generated funds (Brealey et al., 2006). This is partly explained through information asymmetry problems and the costs associated with raising external debt or equity (e.g. Storey, 1994).

There are limits though to the ability of firms to fund growth through retained earnings and internally generated finance. The attainable growth rates available to the firm are related to their current absolute resources. In general the faster a firm grows the more it needs to reinvest into the firm and therefore the more likely it is that a firm will need to raise new capital. Under steady low growth rates the

firm may be able to fund the expansion through retained earnings, however as growth rates increase the firm may reach the point where all retained earnings are used up and further growth would require the raising of new capital. As such, all else being held constant, the firm must look to external debt or equity funding to fund growth.

The growth rate corresponding to the maximum growth rate without resorting to external capital is termed the internal growth rate (Brealey et al., 2006). This internal growth rate is a function of the proportion of funds ploughed back into the firm multiplied by the return on equity and the ratio of equity to assets. A firm can achieve a higher growth rate without raising external capital under three conditions being, firstly, by ploughing back a higher proportion of its earnings, secondly, by achieving a higher return on equity, or lastly by lowering its debt to equity ratio (Brealey, Myers, Partington, & Robinson, 2003). More likely is that instead of focussing on maximum growth rates that can be achieved without any external funding, the firm may be more focussed on the growth rate that can be achieved without any further equity issues. As noted by Brealey and Myers (2006), if the firm is able to issue further debt, virtually any growth rate can be financed. It can be assumed though, that the firm will settle on an optimum debt to equity ratio, and only issue sufficient debt to maintain that ratio. Firms can obviously grow rapidly simply by issuing more debt, but such growth cannot be maintained without incurring excessive debt levels (Brealey et al., 2006).

Under external financial resource constraints, firm growth can be related to current resource availability. By assuming that as the firm grows, that assets, debt financing, sales and net income all grow in fixed proportion to each other, then the maximum sustainable growth rate the firm can achieve can be related to the firms return on equity through the following relationship (Smith & Smith, 2004):

$$g^* = \frac{\text{Net Income}}{\text{Equity}} \cdot \text{Retention Ratio}$$

where g^* is the sustainable growth rate and the ratio of net income to equity is the firm's return on equity.

Consequently, the sustainable growth rate is the highest growth rate that can be maintained without the firm increasing its financial leverage. The sustainable growth rate is the product of the retention ratio and the firms return on equity. For a firm with a given amount of leverage there will be a maximum growth rate that the firm can achieve. Firms maintaining growth as this rate can sustain that growth rate without resorting to external funding while for firms growing at less than this sustainable growth rate, excess funds will be generated by the firm. In this case the excess funds can be either paid out to existing shareholders or retained in the firm as cash ready for reinvestment.

The return on equity can also be related to the firms return on sales, asset turnover and leverage ratio as:

$$ROE = \frac{NI}{Equity} = \frac{NI}{Sales} \cdot \frac{Sales}{Assets} \cdot \frac{Assets}{Equity}$$

where ROE is the return on equity and NI is net income.

Restated in this format suggests that the firm can try and increase its return on equity and hence attainable growth rates through either increasing profit margins on sales, increasing asset efficiency or by increasing financial leverage of the firm. Consequently, the sustainable growth rate can be expressed as (Smith & Smith, 2004):

$$g^* = \frac{(\text{EBIT} - i \cdot (\text{Assets} - \text{Equity})) \cdot (1 - t)}{\text{Sales}} \cdot \frac{\text{Sales}}{\text{Assets}} \cdot \frac{\text{Assets}}{\text{Equity}} \cdot \text{Retention Ratio}$$

where EBIT is earnings before interest and tax, t is the tax rate and i is the interest rate on debt financing.

Firms wishing to embark on a growth strategy and expand at a greater rate than their sustainable growth rate will consequently be constrained by internal finance. For firms to do this they must either take on additional debt or equity, or alternatively get additional efficiency out of their existing resource base. Firms facing resource constraints may also bootstrap current resources to achieve growth. Winborg and Landstrom (2000) examined bootstrapping behaviour and found several dimensions of bootstrapping used by firms. These included several related to more efficient working capital management in addition to owner financing, joint utilization of assets and subsidy financing. These options can enable the firm to achieve greater growth from existing resources and enable the firm to increase its sustainable growth rate. These factors include better management of the companies operating cash cycle, which includes improving inventory management as well as accounts receivable and accounts payable turnover. Alternatively, the firm can attempt to improve gross margins. Increasing gross margins allows the firm to increase the amount of cash generated by each dollar of sales and can be achieved by lowering costs and increasing prices.

Hence, by examining changes in components of working capital (cash levels, accounts receivable, inventory and accounts payable) as well as changes in gross margins and debt to equity levels an indication of bootstrapping behaviour of these firms should emerge. In these cases, bootstrapping behaviour would be indicated by increases in accounts receivable turnover, increases in inventory turnover and decreases accounts payable turnover. In addition, changes in gross margins and debt to equity ratios provide further information on the degree of financial slack within these firms.

Resource Slack and Firm Growth

Firm growth is seen as a desirable outcome of entrepreneurial activity. Underlying this view is that the resources possessed of the firm determines the firm's ability to expand (e.g. Penrose, 1959). The resource-based view of the firm assumes that the firm's unique resource endowments influence the rate of growth and overall firm performance (e.g. Barney, 1991). Consequently, firm growth and performance is considered to be influenced by how the firm uses the resources available to them.

Mishina et al. (2004) argue that what really matters is not so much the absolute amount of resources but the resource available in relation to the firms demand. In other words, it is resource slack which is considered the driver of growth rather than the total quantity of resources of the firm (Mishina et al., 2004). Slack is defined as a dynamic quantity that represents the difference between the quantity of resources currently possessed by a firm and the current resource demands of the business (Mishina et al., 2004). This becomes important when considering two firms that may have similar resource endowments but differ in the resource needs of their current businesses. Hence these two firms could have different resource slack and consequently differing growth potential (Mishina et al., 2004). Ideally, firms would like to be in the position of having resources available to fund growth and investment opportunities as they arise, and as such having financial slack can be beneficial to the firm. Financial slack means cash, marketable securities, readily saleable real assets and ready access to debt markets or to bank financing (Brealey et al., 2003). Firms should therefore aim to maintain sufficient financial slack to ensure that financing is available for good investments.

Research though, on the role of slack in determining firm performance is still an unresolved issue. Cyert and March (1963) suggested a positive effect of resource slack on performance while Jensen (1986) suggested a negative effect. Others still have suggested that the slack-performance relationship is curvilinear (Bourgeois III, 1981). In order to investigate the effect of resource slack on performance, George (2005) considered two streams of research being firstly, that related to the behavioural theory of the firm (Cyert & March, 1963) and secondly those related to the resource constraints literature (Baker & Nelson, 2005). The behavioural theory of the firm suggests that resource slack can have positive effects, given that the availability of resources can impact on the decision making processes and strategic behaviour of managers of small and medium enterprises. Managers of firms with resources slack are likely to experiment and may use these excess resources in order to expand market share, introduce new products or perhaps pursue growth opportunities in new geographic areas. Providing these projects add value to the firm, this growth will be beneficial to the firm. An additional benefit is that these firms may invest in projects with uncertain outcomes, creating an environment for innovation (George, 2005). Other advantages include the ability to overcome the liability of newness; in addition to firms with larger resource endowments being more capable of developing responses to competitive strategies (George, 2005). However, negative effects of resource slack have also been suggested (George, 2005). For instance, firms with slack may relax internal controls which may lead to less than efficient use of resources. Managers of these firms are also more likely to make irreversible commitments to projects, thereby closing off valuable options and possibly reducing longer term firm value.

In contrast, firms with resource constraints have fewer resources to invest and consequently may be more likely to use these resources more efficiently (eg Baker & Nelson, 2005). Managers in these firms will be more focussed on managing cashflows and will attempt to manage available resources in the most efficient way possible. In response to competitive strategies, firms with resource constraints may adopt a more focus based strategy, building capabilities in a particular area which may be of benefit.

In general, growing firms and firms with growth opportunities are likely to be resource constrained. The important thing though is how these firms deal with these resource constraints and secondly the impact on performance. Firms with fewer resources than their operations require are likely to be more efficient as they find ways to leverage and stretch available resources (George, 2005). Baker, Pricer and Nenide (2000) for example found that undercapitalised firms outperformed those with greater resources.

Part of the problem in determining the influence of resource slack on firm growth and performance is disagreement and difficulty in measuring slack (e.g. Bourgeois III, 1981). Absolute measurements can be problematic and without considering resource demands it is unclear how the quantity of absolute levels of resources available to the firm impacts on organisational growth (Mishina et al., 2004). In considering the measurement of financial slack, Bourgeois (Bourgeois III, 1981) suggested that while absolute measures may not be attainable, changes in slack might be more appropriate. For instance, significant indicators of changes in slack include changes in retained earnings, general and administrative expenses, working capital on sales ratios and debt to equity ratios. Indications for firms with financial slack would include increases in retained earning, increases in general and administrative expenses and an increase in working capital in relation to sales. In addition, a decrease in debt to equity ratios would indicate financial slack.

METHOD

The research utilises panel data from the Business Longitudinal Survey (BLS) conducted by the Australian Bureau of Statistics (ABS) over the period 1994-95 through to 1997-98. The surveys collected firm level longitudinal data on a large and diverse sample of Australian Small and Medium Enterprises. A

sample of approximately 13,000 SME's with less than 200 employees were surveyed in the first year (1994-95) with around 4,000 of these firms forming a longitudinal sample over the following three year period. The survey excluded primary industries other than mining, government enterprises, utilities and public services (education, health, libraries, museums, parks etc.). The dataset contains detailed information on firm growth and financial performance (including sales forecasts). For the purposes of the study, only those firms that provided complete information in each year were included in the analysis.

The sample chosen consisted of those firms organised as companies only. Wholly owned subsidiaries were also excluded from the analysis as it would be expected that these firms face substantially different resourcing constraints than other firms. As the primary purpose of the study was to investigate various bootstrapping techniques used by the firms and in order to reduce heterogeneity only manufacturing firms were included in the current study. The manufacturing industry classification included nine sub-categories. The upper and lower 2.5% of each variable was trimmed in order to reduce the effect of outliers and data entry errors. This is consistent with previous work where the upper and lower 1% of each variable being trimmed (Leary & Roberts, 2004). The additional trimming was felt necessary given a large number of outliers in the data.

The dependent variable for the study was the growth rate of sales for the 1995/96 financial year (calculated as the change in sales for the period divided by the sales from the previous financial year). As the emphasis of the study was to investigate the financing patterns of firms growing faster than their sustainable growth rate, the firms were separated into those with growth rates during this period greater than their sustainable growth rate (n = 163 firms) and those firms where sales growth was less than the sustainable growth rate (n = 404 firms).

The independent variables chosen for the study reflected the incremental change in the components of the firms' working capital as well as relevant operating ratios. The coincided with factors indicating bootstrapping as well as indicators of financial slack. For changes in working capital we used changes in accounts receivable on sales, changes in inventory levels on sales and changes in accounts payable on sales. Unfortunately, the BLS study did not discriminate between cash and accounts receivables. Instead these were simply classified under current assets for each firm (less inventory). Hence in this study accounts receivable refers to the effect of both cash reserves and accounts receivables, although it should be noted that accounts receivable in most cases are substantially larger than cash reserves. To investigate the effect of changes in leverage, the change in debt to equity level was used. Changes in gross margins were used to investigate the ability of the firm to enable growth rates through increasing profitability measures.

The analysis was carried out in two parts. Firstly, regression analysis was performed in order to examine the factors influencing growth rates of firms growing faster than their sustainable growth rate. Secondly, discriminant analysis was utilised in order to determine the factors separating low growth and high growth firms (firms growing at a lower or greater rate than their respective sustainable growth rates). Control variables included firm age, firm industry and total assets at the beginning of the 1995/96 financial year. To allow for variation due to initial resource endowments, we also included beginning absolute values for components of working capital components on sales and gross margins at the beginning of the period.

RESULTS

The descriptive statistics and correlations for the variables in the study are shown in Tables 1 and 2. Average one year growth rates (for the financial year 95/95) for the firms growing faster than their

sustainable growth rate was approximately 21.5% and the average gross margins for these firms being around 57%. This compares with firms growing slower than their sustainable growth rate which had average growth rates of -1.3% and similar gross margin of around 57%.

Regression Analysis

Table 3 shows the regression results for the model describing sales growth in the financial year 1995/96. We find no significant relationship between growth rates and firm age or total assets. Similarly apart from positive relationship between accounts receivable to sales ratio for the start of the period and growth rate, we find no evidence to suggest that initial resource endowments or efficiency ratios have any bearing on the growth rate obtained of the one year period. The result for accounts receivable to sales ratio suggests that firms with greater accounts receivable to sales ratio at the start of the period achieve greater growth over the following period. Given that the accounts receivable variable included both cash and accounts receivable this may reflect to some extent high cash reserves in these firms at the start of the period. Compared to firms growing at a rate less than their sustainable growth rate, a subsequent t-test also indicated the high growth firms to have a significantly lower account receivable to total asset ratio at the start of the period than firms growing at a rate less than their sustainable growth rate.

In terms of changes in efficiency ratios we find significant relationships between changes in gross margins and inventory to sales ratios and sales growth over the 1995/96 financial year. A negative relationship was found between changes in gross margins and sales growth which suggests that to achieve the greater sales growth that firms tended to reduce gross margins. Similarly, a negative relationship was also found between sales growth and a firm's inventory to sales ratio suggesting that a significant proportion of sales growth was achieved through decreasing inventory levels. We find no significant evidence of a change in debt to equity ratios, suggesting little evidence that the growth was financed through addition debt funding. Similarly, we find no evidence of growth being funded through changes in accounts receivable or accounts payable policies.

Discriminant Analysis

The results from the discriminant analysis are shown in Table 4. The analysis investigated the factors separating high growth firms (growing faster than their sustainable growth rate) from low growth firms (growing at a lower rate than their sustainable growth rate). The canonical correlation for the analysis was 0.25 and the Wilks' Lambda test indicated that the differences between the groups was significant ($\chi^2(8) = 29.75, p = 0.000$). The classification table indicated that 70.2% of the cases were correctly classified although only around 50% of each group was correctly classified.

The function at groups centroids indicate that high growth firms score below average on the discriminant function given in Table 4. The most significant contributing cases to the discriminant function were change in inventory to sales ratio and the change in debt to equity ratio, and to a lesser extent the change in accounts receivable to sales ratio and the account payable to sales ratio at the start of the period. The results suggest that firms in the high growth group tended to decrease their inventory to sales ratio and increase their debt to equity ratios during the one year period in the study. These firms also tended to decrease their accounts receivable to sales ratios and in addition tended to have higher accounts payable to sales ratios at the beginning of the period.

Overall the discriminant analysis is suggests that firms growing faster than their sustainable growth rates showed some evidence of bootstrapping growth through working capital management (increasing inventory and accounts receivable turnover). These firms also showed evidence of a greater tendency to decrease gross margins and employing additional debt funding as indicated by an increase in debt to

equity funding, although a subsequent chi-square test showed no significant difference between the proportion of firms in each category increasing debt to equity ratios.

DISCUSSION

The aim of this study was to investigate the financial resourcing behaviour of high growth firms and in particular firms growing faster than the rate they are able to finance internally. For these high growth firms the additional growth must be financed through either external debt or equity sources or alternatively through bootstrapping behaviour associated with incremental improvements working capital management or in efficiency ratios. Overall, while a significant proportion of firms achieved one year growth rates in excess of their sustainable growth rates, we find that consistent with the pecking order hypothesis that there is little evidence of this growth being funded through additional debt or equity issues.

We find evidence that firms growing faster than their sustainable growth rates do however engage in bootstrapping behaviour to finance this growth and finance this growth through internal means. In particular, a significant proportion of this growth was found to be finance through short term behaviour through decreasing inventory levels. While this may be a short term solution, it raises questions about the sustainability of this growth. Given that the additional growth was also associated with decreases in gross margins, it also raises the question of whether this growth will be associated with increases in firm performance measures such as returns on assets.

More importantly, we find little evidence of firms engaging in behaviour to improve efficiency ratios to finance growth. To achieve high growth using internal finance that would be sustainable over the longer term, firms would need to make improvements to efficiency ratios to increase gross margins or to decrease the operating cash cycle of the firm. Greater growth rates could be achieved through increasing gross margins though either increasing prices through more creative pricing structures or by decreasing expenses. However we find little evidence of firms engaging in this behaviour.

Similarly, we find little evidence of firms making sustainable improvements to their working capital policies in order to finance growth through measures that increase cash flow and reduce working capital requirements in the longer term. Greater sustainable growth rates could be achieved by improving efficiency ratios such as increasing accounts receivable turnover, decreasing accounts payable turnover, or increasing inventory turnover. While the high growth firms do increase inventory turnover over the period under study, these firms did however start out with a significantly lower inventory turnover rate at the start of the period as compared to firms growing at a rate less than their sustainable growth rate. No significant differences were found in inventory turnover ratios between high and low growth firms at the end of the period. This might suggest that rather than being a conscious effort to increase inventory turnover, the increased inventory turnover ratio at the end of the period in the high growth firms may simply be a response to reduce inventory levels to industry standards. The decrease in gross margins over the period also suggests this. Similarly, there seems to be little evidence that firms are reducing their working capital needs by increasing receivables turnover or decreasing accounts payable over the one year period. For both receivables and payables, the turnover ratios are comparable to those for firms growing at a rate less than their sustainable growth ratios. This may also be a consequence of the credit policies and payables policies being constrained by industry practice.

CONCLUSIONS

Improvisation, bootstrapping and bricolage have been identified as emerging themes in entrepreneurship with recent findings that resource constraints may have a positive impact on growth and performance of entrepreneurial firms. How entrepreneurs leverage scarce financial resources in order to pursue growth under these conditions is an important research question. The findings from this study indicate that high growth firms maintain a preference for internal finance and show some evidence of bootstrapping behaviour through leveraging current assets in order to fund growth in the short term. Whether the bootstrapping techniques observed contribute to longer term growth and performance remains unclear. More research is required in order to investigate the relationship between growth and profitability and longer term value creation in the firm.

APPENDICES

Variable	High Growth Firms (> SGR) (n=163)		Low Growth Firms (< SGR) (n = 404)	
	Mean	S.D.	Mean	S.D.
Firm Age (Years)	8.6	4.5	8.6	4.5
Total Assets (\$)	2985	6358	2667	4377
Sales Growth (%)	21.55	26.1	-1.31	16.8
Gross Margins 1995 (%)	56.7	16.1	56.7	16.8
WC / Sales Ratio 1995 (%)	13.7	66.3	8.3	27.5
Inventory / Sales Ratio 1995 (%)	12.3	16.3	9.1	10.3
Debt / Equity Ratio 1995 (%)	-118.2	34.0	8.9	42.3
AccRec / Sales Ratio 1995 (%)	22.0	21.5	22.1	16.3
AccPay / Sales Ratio 1995 (%)	26.7	33.3	23.0	23.4
ROA 1995/1996 (%)	5.7	16.1	7.2	13.9

Table 1. Descriptive Statistics

Correlations

		Sales_Growth_96	Gross_Margins_95	Delta_Gross_Margin_96	Delta_WC_Sales_96	WorkCap_Sales_95	Invent_Sales_95	Delta_Invent_Sales_96	Debt_Equity_95	Delta_Debt_Equity_96	AccRec_Sales_95	Delta_AccRec_Sales_96	AccPay_Sales_95	Delta_APSales6	Total_Assets_95	age5
Sales_Growth_96	Pearson Correlation	1	-.012	-.050	-.001	.031	.073	-.336**	.065	-.025	.206**	-.124	.009	-.114	-.020	.019
	Sig. (2-tailed)	.	.883	.524	.988	.692	.354	.000	.406	.790	.009	.115	.907	.148	.798	.806
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Gross_Margins_95	Pearson Correlation	-.012	1	-.353**	-.061	.046	-.156*	.106	.006	.034	.021	-.030	-.059	.037	-.245**	-.028
	Sig. (2-tailed)	.883	.	.000	.436	.562	.047	.177	.943	.712	.794	.705	.451	.636	.002	.725
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Delta_Gross_Margin_96	Pearson Correlation	-.050	-.353**	1	-.092	.037	-.015	-.234**	-.042	-.071	-.106	.037	.060	-.017	-.066	.003
	Sig. (2-tailed)	.524	.000	.	.240	.635	.847	.003	.596	.447	.181	.642	.450	.827	.401	.965
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Delta_WC_Sales_96	Pearson Correlation	-.001	-.061	-.092	1	-.955**	.033	.064	.008	-.424**	-.213**	.198*	.202**	-.147	.056	.059
	Sig. (2-tailed)	.988	.436	.240	.	.000	.674	.420	.917	.007	.012	.010	.010	.061	.479	.457
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
WorkCap_Sales_95	Pearson Correlation	.031	.046	.037	-.955**	1	.021	-.050	-.005	.256**	.415**	-.105	-.212**	.111	-.022	-.054
	Sig. (2-tailed)	.692	.562	.635	.000	.	.794	.527	.948	.005	.000	.182	.007	.157	.782	.495
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Invent_Sales_95	Pearson Correlation	.073	-.156*	-.015	.033	.021	1	-.465**	-.126	-.057	.013	-.099	.372**	-.204**	.177	.126
	Sig. (2-tailed)	.354	.047	.847	.674	.794	.	.000	.110	.537	.866	.212	.000	.009	.024	.108
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Delta_Invent_Sales_96	Pearson Correlation	-.336**	.106	-.234**	.064	-.050	-.465**	1	-.012	.026	.160*	.004	-.120	.229**	.002	-.023
	Sig. (2-tailed)	.000	.177	.003	.420	.527	.000	.	.880	.782	.043	.959	.128	.003	.985	.770
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Debt_Equity_95	Pearson Correlation	.065	.006	-.042	.008	-.005	-.126	-.012	1	.329**	-.175*	.022	-.180*	.014	-.068	.007
	Sig. (2-tailed)	.406	.943	.596	.917	.948	.110	.880	.	.000	.026	.780	.021	.859	.390	.926
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Delta_Debt_Equity_96	Pearson Correlation	-.025	.034	-.071	-.424**	.256**	-.057	.026	.329**	1	.289**	-.293**	-.036	.027	-.103	-.033
	Sig. (2-tailed)	.790	.712	.447	.000	.005	.537	.782	.000	.	.002	.001	.700	.770	.267	.724
	N	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118
AccRec_Sales_95	Pearson Correlation	.206**	.021	-.106	-.213**	.415**	.013	.160*	-.175*	.289**	1	-.506**	.429**	-.268**	.297**	.098
	Sig. (2-tailed)	.009	.794	.181	.007	.000	.866	.043	.026	.002	.	.000	.000	.001	.000	.214
	N	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
Delta_AccRec_Sales_96	Pearson Correlation	-.124	-.030	.037	.198*	-.105	-.099	.004	.022	-.293**	-.506**	1	-.388**	.703**	.059	-.020
	Sig. (2-tailed)	.115	.705	.642	.012	.182	.212	.959	.780	.001	.000	.	.000	.000	.455	.803
	N	162	162	162	162	162	162	162	162	118	161	162	162	162	162	162
AccPay_Sales_95	Pearson Correlation	.009	-.059	.060	.202**	-.212**	.372**	-.120	-.180*	-.036	.429**	-.388**	1	-.693**	.239**	.103
	Sig. (2-tailed)	.907	.451	.450	.010	.007	.000	.128	.021	.700	.000	.000	.	.000	.002	.191
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Delta_APSales6	Pearson Correlation	-.114	.037	-.017	-.147	.111	-.204**	.229**	.014	.027	-.268**	.703**	-.693**	1	-.001	.003
	Sig. (2-tailed)	.148	.636	.827	.061	.157	.009	.003	.859	.770	.001	.000	.000	.	.986	.974
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
Total_Assets_95	Pearson Correlation	-.020	-.245**	-.066	.056	-.022	.177*	.002	-.068	-.103	.297**	.059	.239**	-.001	1	.131
	Sig. (2-tailed)	.798	.002	.401	.479	.782	.024	.985	.390	.267	.000	.455	.002	.986	.	.095
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163
age5	Pearson Correlation	.019	-.028	.003	.059	-.054	.126	-.023	.007	-.033	.098	-.020	.103	.003	.131	1
	Sig. (2-tailed)	.806	.725	.965	.457	.495	.108	.770	.926	.724	.214	.803	.191	.974	.095	.
	N	163	163	163	163	163	163	163	163	118	161	162	163	163	163	163

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 2. Correlations

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.248	2.009		.123	.902
	industr5	.000	.009	-.003	-.033	.973
	Firm Age	.000	.005	-.003	-.027	.979
	Total_Assets_95	.000	.000	-.065	-.675	.501
	Gross_Margins_95	.008	.153	.005	.050	.960
	Invent_Sales_95	.192	.163	.129	1.177	.242
	Debt_Equity_95	-.010	.007	-.140	-1.471	.144
	AccRec_Sales_95	.247	.128	.207	1.935	.056
	AccPay_Sales_95	.032	.111	.033	.284	.777
	2	(Constant)	.782	1.802		.434
industr5		-.002	.008	-.024	-.280	.780
Firm Age		-.002	.005	-.029	-.349	.728
Total_Assets_95		.000	.000	-.033	-.374	.709
Gross_Margins_95		-.157	.149	-.099	-1.054	.294
Invent_Sales_95		-.297	.169	-.200	-1.758	.082
Debt_Equity_95		-.005	.006	-.078	-.872	.385
AccRec_Sales_95		.375	.138	.314	2.712	.008
AccPay_Sales_95		-.121	.136	-.125	-.888	.377
Delta_Gross_Margin_96		-.607	.214	-.277	-2.837	.005
Delta_Debt_Equity_96	-.002	.001	-.164	-1.619	.109	
Delta_Invent_Sales_96	-2.309	.383	-.677	-6.025	.000	
Delta_AccRec_Sales_96	-.205	.175	-.190	-1.170	.245	
Delta_AccPay_Sales_96	.144	.170	.124	.847	.399	

a Dependent Variable: Sales_Growth_96 R-Squared = 0.347

Table 3. Regression Results

Functions at Group Centroids

SGRRatioD2	Function 1
.00	.150
1.00	-.443

Unstandardized canonical discriminant functions evaluated at group means

Standardized Canonical Discriminant Function Coefficients

	Function 1
Delta_Gross_Margin_96	.148
Delta_Invent_Sales_96	.941
Delta_Debt_Equity_96	-.452
Delta_AccRec_Sales_96	.200
AccPay_Sales_95	-.053
Firm Age	-.037
Total_Assets_95	-.072
AccRec_Sales_95	-.041

Table 4. Discriminant Results

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