A BEHAVIORAL COMPARISON OF FINANCIAL RATIOS FOR DIFFERENT SIZE PRIVATELY-HELD RETAIL AND SERVICE BUSINESSES

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ABSTRACT

An analysis was conducted to evaluate the cross-sectional variations of financial ratios among different size private companies. The study examines four ratio categories for the retail and service sectors over the period 1998 to 2000. The ratio categories include: (1) liquidity, (2) activity, (3) leverage, and (4) profitability. Results provide strong evidence that small retail firms perform differently than larger retail firms in all categories and time periods. Service firms had the strongest and most consistent differences in activity and profitability ratios. Separate comparisons of the retail and service sectors also showed significant performance differences in every ratio category.

Keywords: small business, ratios, retail, service, financial analysis, entrepreneurship

INTRODUCTION

Understanding differences in firm financial performance has motivated a significant number of research efforts in the area of financial statement analysis. For instance, several studies have examined internal financial ratios and found that these ratios vary across different size public firms (i.e. Pinches and Mingo 1973, Ferri and Jones 1979, and Marsh 1982). Gupta and Huefner (1972), Johnson (1979), and Gombola and Getz (1983) found that retailers and manufacturers exhibit substantially different financial ratio characteristics. More specifically, Osteryoung, Constand, and Nast (1992) showed that significant differences exist in financial ratios between large public and small private firms. Their sample was constructed using total assets as the size proxy and included manufacturers, wholesalers, and retailers. Wholesalers and retailers constituted the dominant sectors in the sample. The authors concluded that small private firms use more debt, have larger activity ratios and are more profitable than the larger public firms. Other studies have concluded that financial ratios vary significantly between the retail and manufacturing sectors (i.e.; Gupta and Huefner 1972, Johnson 1979). The financial ratio studies that focus only on small private firms are either dated or focus on the nature of the ratios and why they are important (i.e.; Kristy 1994, and Patrone and Dubois 1981).

Absent from the literature is an analysis of the potential differences in internal financial ratios across different size private firms, relative to a particular sector. As such, the purpose of this study is to address this gap by examining whether financial ratios, representing investing, financing, and operating policies vary by size for private firms in the retail and service sectors.

DATA AND METHODOLOGY

The sample was drawn from data in "Financial Studies of the Small Business (FSSB) published by the Financial Research Associates." (Financial Research Associates 1998-2000). The study includes financial performance metrics for all firms classified as being in the retail sector during the most recent three years of data availability, which ranges from 1998-2000. The FSSB ratios are compiled from data provided by certified public accounting firms across the United States. The FSSB produces pre-calculated mean ratios arranged by sector and size dimensions. The size proxy used in this study was total sales. Specifically, the size categories are as follows: (1) $10,000-$250,000, (2) $250,000-$500,000, (3) $500,000-1,000,000, and (4) above $1,000,000. The following traditional categories of ratios are of interest in this study: (1) liquidity, (2) activity, (3) leverage, and (4) profitability, as supported by Burns, Sale and Stephan (2008) . Several ratios representing the above mentioned categories were examined in this study. First, in order to assess liquidity, the current ratio was the primary ratio examined. Current assets to total assets was also examined in order to help in the interpretation of the results. Activity was measured by one primary ratio and one secondary ratio, sales to assets and sales to inventory, respectively. Leverage ratios examined included debt to assets as the primary metric and short-term debt to total debt as a secondary measure. Examination of the profit to sales and profit to net worth ratios were used to provide an assessment of profitability. Statistical significance

was assessed through the use of t-tests for differences in the means for all possible pairs of firm size.

RESULTS

The results of the statistical tests are presented in Table 1 below and show that size is an important determinant of financial performance for firms in the retail sector.

TABLE 1: Retail Sector Financial Performance Test Results

SIZE[1]	1 vs 2	1 vs 3	1 vs 4	2 vs 3	2 vs 4	3 vs 4
RATIO						
Current Ratio						
2000		> **	> **			
1999			> **		> *	> **
1998	> **		> ***	< **		> ***
Sales/Assets						
2000	< *	< *	< **			< *
1999	< **	< **	< **		< *	< *
1998	< **	< ***	< ***		< **	< **
Debt/Assets						
2000						
1999						
1998	< *			> **	> **	
Profit/Sales						
2000		> **	> ***	> **	> **	
1999					> **	> *
1998			> *	< **		> ***
Sales/Inventory						
2000	< *	< *	< ***			
1999		< *	< *			
1998	< *		< *			
ST Debt/Total Debt						
2000	< *	< ***	< ***	< **	< ***	
1999	< *	< ***	< ***		< **	< *
1998		< **	< ***	< *	< ***	
CA/Assets						
2000						
1999						
1998						
Profit/Net Worth						
2000						
1999						
1998						
Significance:	* =10%	**=5%	***=1%			
[1]Size Catgories:	10-250=1	250-500=2	500-1,000=3	1,000+ =4		

Liquidity was found to vary significantly in each of the three years examined between the smallest and largest size categories (1 vs. 4). Every other size pairing yielded only one significant result for the three years investigated. These results conflict with the findings of Osteryoung, Constand, and Nast (1992) who found no difference in the liquidity between large public and small private firms. However, these results are consistent with Fieldsend, Longford, and McLeay (1987) who found that current ratios were extreme for small public firms and trended toward the industry norm as firm size increased. An inspection of this most current data indicates that liquidity for retail firms is inversely related to size. Current Assets/ Total Assets showed no significance in any time period or size category. The implication is that current liabilities are increasing with firm size while the relative proportion of short and long lived assets remained constant.

The Activity Ratio results for both the sales to assets and sales to inventory metrics, indicate a positive relationship between large and small private firms in addition to significant differences in performance across size categories. The strongest relationship was found in the sales to assets ratio. Significance exists in every size pairing, across all three years, except in the 2 vs 3 size comparison. This is inconsistent with Osteryoung, Constand, and Nast (1992) who found that small private firms had greater activity ratios than large public firms.

The primary Leverage Ratio results for debt/assets from Table 1 indicate that total debt is unrelated to firm size. The secondary leverage measure, short-term debt/total debt indicates a positive and significant relationship between firm size and use of short-term debt. This is again inconsistent with Osteryoung, Constand, and Nast (1992) who found that small firms had higher total leverage and relied more heavily on short-term debt than large firms.

The results for the Profitability Ratios are mixed. Generally, smaller firms exhibit greater profitability when measured by return on sales (profit/sales). However, there are no differences with respect to size when measured by return on equity (profit/net worth). None of the studies previously cited looked at profitability with respect to sales.

The results of the statistical tests for the service sector are presented in Table 2 below and show that size is also an important determinant of financial performance for firms in this classification.

TABLE 2: Service Sector Financial Performance Test Results

SIZE[1]	1 vs 2	1 vs 3	1 vs 4	2 vs 3	2 vs 4	3 vs 4
RATIO						
Current Ratio						
2000	<*					
1999	<*		<*			
1998						
Sales/Assets						
2000						
1999	<**	<*	<*			
1998	<*	<*	<*			
Debt/Assets						
2000						

1999	>*					
1998						
Profit/Sales						
2000	>*	>*				
1999	<*		>*	>**	>***	
1998	>**	>**	>***			
Sales/Inventory						
2000	<*	<***	<**			
1999	<*	<*	<**			
1998	<**	<**				
ST Debt/Total Debt						
2000	<***	<**	<***		<*	<*
1999						
1998			<*			<**
CA/Assets						
2000						
1999						
1998						
Profit/Net Worth						
2000						<*
1999		<**	<**			
1998						
Significance:	* =10%	**=5%	***=1%			
[1]Size Catgories:	10-250=1	250-500=2	500-1,000=3	1,000+ =4		

The results for the Liquidity Ratios generally indicate no significant differences with respect to size. These results are consistent with the findings of Osteryoung, Constand, and Nast (1992) whose sample was primarily comprised of service and retailing firms. This result illustrates the need for disaggregating the sample since retail and service firms performed significantly different with respect to the size factor.

The results associated with the Activity Ratios for service firms show a positive and significant relationship. These results are inconsistent with the findings of Miller (1987) who concluded that firm size was unrelated to productivity for public firms in the service sector. Additionally, the behavior of the mean activity ratios of the service and retail sectors are very similar with regard to the direction and significance of the size relationship.

An examination of the Leverage Ratios show that total debt utilization is unrelated to service firm size. This is the same result obtained in the analysis of the retail sector. However, the findings indicate that smaller firms used significantly less short-term debt than the larger firms. The service and retail sectors show similar behavior in the usage of short-term debt.

Generally, the Profitability Ratios indicate that small service firms have higher returns to sales than large firms. However, there were limited differences in profitability when return on equity was used as the measure of profitability. Both of these results are similar in behavior to the results produced for the retail sector.

Table 3 provides the results of an analysis of differences between the grand means (i.e., average of the means for all three years) within each size category for the retail and service sectors.

TABLE 3: A Comparison of Financial Performance of the Service and Retail Sectors

SIZE[1]	1	2	3	4
RATIO				
Current Ratio	<***	<**	<***	<***
Sales/Assets	>***	>***	>***	>**
Debt/Assets	>**		>**	
Profit/Sales	>*	>*	>*	>**
Sales/Inventory	>***	>***	>***	>***
ST Debt/Total Debt			<***	<**
CA/Assets	<***	<***	<***	<***
Profit/Net Worth		>*		>***
Significance:	* =10%	**=5%	***=1%	
[1]Size Catgories:	10-250=1	250-500=2	500-1,000=3	1,000+ =4
< and > indicate how service firms performed relative to retail firms				

Generally, a review of the results shows that the service sector and retail sector perform very differently for every metric when compared to the equivalent size classification. Specifically, service firms have less liquidity, greater activity, and higher profitability than retail firms of similar size. Interestingly, service firms had higher total debt levels in size categories 1 and 3. The short-term debt findings show that service firms used significantly smaller amounts than retail firms in size categories 3 and 4.

CONCLUSIONS

The findings demonstrate that size, as measured by total sales, is a critical factor in the behavior of the financial performance of small, privately-held service and retail companies. Specifically, the largest and smallest firms exhibit significant differences in their respective liquidity, activity, leverage, and profitability ratios for firms in the retail sector. Service firms exhibited the strongest differences in their respective activity, debt and profitability ratios. Furthermore, an examination of the behavior of the metrics between retail and service firms of similar size showed significant differences. An important implication of these results is that size and sector need to be considered when using this data as a benchmarking tool.

In a life-cycle context, these findings suggest a behavioral view of the growth path for small retail operations. Liquidity is highest during the early phase when the capital structure is first put in place. Since small firms do not have easy access to long-term financing after the initial financing is in place, growth occurs from existing liquidity, liquidity generated from ongoing operations, and from increases in the use of short-term financing. Total debt capacity is relatively stable as the companies grow; only the relative mix between short and long term debt changes over the size categories. The findings also may suggest that competition is increasing with the sales gains since profitability is falling. Additionally, as firms grow in sales, the relative proportions of

current assets to total assets remains stable. As such, asset structures tend to be set in the initial phase of the life-cycle for both retail and service firms.

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