

Diversification, Financing Decisions and Performance: An Empirical Evaluation

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The study examines the relationship between diversification and capital structure strategy. It also examines the question whether the diversification strategy affects the performance. Lack of extensive research on the inter-relationship of the three aspects of the study namely, diversification, capital structure, and performance, has prompted this research.

Theoretically, a firm's overall risk comprises of its business risk and the financial risk. By reducing the business risk, through diversification, a firm should be able to increase its financial leverage without the overall risk level getting out of control. However, the present applied study does not show any signs of a clear positive relationship between the degree of diversification and the use of debt. Both diversification and capital structure strategies seem to be independent of one another. However, further research, especially using data from emerging economies could provide additional insight on this issue.

Though the study could not find any strong evidence of a positive relationship between diversification strategy and the performance, it is observed that diversified firms are relatively better performers than their counterparts in the focused group. The most significant finding of the study is about the volatility of earnings. It has been found that the firms under the diversified group have shown less volatility of earnings when compared to the firms under the focused group. This trend is found in all the industries selected for this study.

Corporate diversification remains controversial. While Management and Marketing disciplines seem to favor related diversification, Finance does not see much value in corporate diversification and is of the view that the task of diversification should be left to investors.

Corporate diversification is a means by which a firm expands from its core business into other product markets (Aaker 1980, Andrews 1980, Berry 1975, Chandler 1962, Gluck 1985). Empirical studies have shown corporate management to be actively engaged in diversifying activities. Rumelt (1986) found that by 1974 only 14 percent of the Fortune 500 firms operated as single businesses and 86 percent operated as diversified businesses. Many researchers noted an increase in the number of diversified firms in the 1980s (Datta, Rajagopalan and Rasheed 1991, Hoskisson and Hitt 1990). Managers in

European corporations, according to a survey, not only seem to favor diversification, but also seem to actively pursue it (Kerin, Mahajan and Varadarajan 1990). Firms invest significant amounts of money acquiring other firms or depend heavily on internal R&D to diversify away from their core product/markets. Of late, the support for corporate diversification seems to be waning among U.S. firms who are consolidating around their core businesses. The concept of "Core Competency" has gained ground after the seminal article on this subject by Prahalad and Hamel published in the *Harvard Business Review* in 1990. On the contrary, Asian firms continue to remain highly diversified. Examples include Samsung and Hyundai in Korea, and Mitsubishi in Japan. Even in these countries, there seems to be a shift away from unrelated towards related diversification.

For firms that pursue diversification,

their performance will depend upon the ability of its managers to achieve a balance between the costs and benefits of this strategy. One of the arguments put forth by researchers in Management is that diversification could help extend the life of a firm. Finance researchers, on the other hand, argue that diversification primarily benefits managers because it could ensure the continuation of their employment with the shareholders usually bear all the costs of this strategy.

Diversification into new products/markets may help a firm improve its debt capacity and reduce the chances of bankruptcy (Higgins and Schall 1975, Lewellen 1971). It may improve asset deployment and profitability (Teece 1982, Williamson 1975). Competencies developed in one business and transferred to other related businesses, could increase labor and capital productivity. A diversified firm may be able to transfer funds from a cash surplus unit to a cash deficit unit without taxes or transaction costs (Bhide 1993). However, it is also argued that the diversification across product lines is unrelated to debt usage (Singh, Davidson, and Suchard 2002).

Bhide (1993) argues that diversified firms pool unsystematic risk and reduces the variability of operating cash flow and could therefore enjoy comparative advantage in hiring because key employees may feel a greater sense of job security.

Ultimately, this situational argument regarding balancing costs and benefits of diversification strategy can only explain the performance of individual firms. It does not address the theoretical question about the appropriateness of diversification as a corporate strategy. Consequently, whether in general, diversification has an impact on capital structure and enhances firm performance, therefore, becomes an empirical question. The lack of a clear answer to this question in the literature motivates the present study.

The paper is organized in four sections. The first section briefly reviews the empirical literature and presents the research hypotheses. Section two describes the research methodology and discusses the variables. Section three presents the results of the study. The concluding section discusses the results and summarizes the findings.

Review of Empirical Literature

There is an extensive body of literature on the impact of diversification on firm performance. However, the results of the studies are mixed. But the impact of diversification on capital structure has not received much attention. Three seminal articles on corporate diversification (Datta, Rajagopalan and Rasheed 1991, Hoskisson and Hitt 1990, Kerin, Mahajan and Varadarajan 1990), broadly conclude: (a) the empirical evidence is inconclusive; (b) models, perspectives and results differ based on the disciplinary perspective chosen by the researcher; and (c) the relationship between diversification and performance is complex and is affected by intervening and contingent variables such as related versus unrelated diversification, type of relatedness, the capability of top managers, industry structure, and the mode of diversification.

Some studies claim diversifying into related product-markets produces higher returns than diversifying into unrelated product-markets and less diversified firms perform better than highly diversified firms (Christensen and Montgomery 1981, Keats 1990, Michel and Shaked 1984, Rumelt 1974, 1982, 1986). Markides and Williamson (1994) claim that strategic relatedness is superior to market relatedness in predicting when related diversifiers outperform unrelated ones. While agreeing that related strategy is better than unrelated, Prahalad and Bettis (1986), clarify that it is the insight and the vision of the top managers in choosing the right strategy (how much and what kind of relatedness), rather than diversification per se, which is the key to successful diversification. Accordingly, it is not product-market diversity, but the strategic logic that managers use, that links firm diversification to performance. This implies that diversified firms without such logic may not perform as well. Others believe it is not management conduct so much, but industry structure that governs firm performance (Christensen and Montgomery 1981, Montgomery 1985).

Besides diversification types and industry structure, researchers have also looked at the ways in which firms diversify. Simmonds (1990) examined the combined effects of breadth (related

vs. unrelated) and mode (internal R & D versus Mergers & Acquisitions) and found that relatedly diversified firms are better performers than unrelatedly diversified firms, and R&D-based product development is better than mergers and acquisition-led diversification (Simmonds 1990, Lamont and Anderson 1985). Among studies of acquisitions the results are mixed. Some report that related acquisitions are better performers than unrelated ones (Kusewitt 1985), or there is no real difference among them (Montgomery and Singh 1984).

Some studies suggest that service firms should not diversify (Normann 1984). However, Nayyar (1993) shows that in the service industry, diversification based on information asymmetry is positively associated with performance, whereas diversification based on economies of scope is negatively associated with performance. This is a contradiction of Johnson and Thomas' (1987) confirmation of Rumelt's finding that the appropriateness of product diversity is judged by a balance between economies of scope and diseconomies of scale. It also appears there is a limit on how much a firm can diversify; if a firm goes beyond this point, its market value suffers and reduction in diversification by refocusing is associated with value creation (Markides 1992). A recent study finds that diversification can add value not solely by increasing operating performance, but by reducing the risk to investors (Raynor 2002).

Theoretically, diversified firms should have a greater ability to use more debt in their capital structure when compared to the firms belonging to the undiversified (focused) group. Diversified firms can enjoy multiple revenue streams. This enhances the debt servicing capacity of these firms, thereby allowing them to use more debt for the tax benefits. On the relationship between diversification strategy and capital structure, Kochhar and Hitt (1998) argued that the equity financing is preferred for related diversification, and debt financing for unrelated diversification. Others argued that product diversification is possibly unrelated to debt usage, and it may be either negatively related to debt usage or related in a non-

linear manner. Thus, product diversification does not appear to create debt capacity, and therefore, would not offset the value loss from diversification (Singh, Davidson III, and Suchard 2002). On the subject of diversification and earnings volatility, it is argued that both industrial and geographic diversification reduce earnings volatility (Kim et. al 2001).

The present study concentrates solely on the existing level of debt in the capital structure of the firms both in the diversified group and focused group. The review of empirical literature from Management/Marketing disciplines and the theoretical and empirical literature from Finance show that the relationship between diversification and performance as well as diversification and financial structure is complex and is affected by several variables.

The Design

The availability of the databases such as Compustat and the Mergent Online has made it possible to study a larger sample of firms over three years and approach the problem of diversification from a more macro perspective. In order to control for the industry effect, it was decided that a cross-sectional study would not be appropriate. A cross-sectional study may mask the differences within industries. Four industries, namely Chemicals and Allied Products, Electronic and other Electric Equipment, Food and Kindred Products, and Paper and Allied Products were chosen for this study. The period of the study was 1999-2001. Only those companies that had complete data for all the three years were retained. Special care has been taken to ensure that the chosen firms remain in either diversified group or the focused group for all the three years. Care has also been taken to remove outliers from the data for the debt ratio and the ROE.

The study covers a total number of 306 companies from four industry groups. The following schedule will highlight the number of companies that are included from four different industry groups.

The data for this study was obtained from Compustat and Mergent Online. Only those companies for which

Schedule of Four Industries Included In This Analysis

(Number of companies in each industry-group)

	Chemicals	Electronics	Food	Paper	Total
Focused Group	114	84	43	18	259
Diversed Group	14	14	9	10	47
Total	128	98	52	28	306

complete data was available for all three years were included in the study. The data was carefully screened to ensure that the companies will remain either in the focused group or the diversified group for all the three years. If the time period of the study had been expanded beyond three years, it would have reduced the number of companies with complete data for all the years of the study.

Specialization Ratio (revenue from a firm's largest segment divided by its total revenue) has been used as a measure of diversification. Similarly, the debt ratio (long-term debt to total assets) is used to highlight the usage of debt in the capital structure, and the return on common equity (ROE) is used as the measure of financial performance.

Measurement of Concepts

This section defines and operationalizes these concepts.

• Diversification

This study uses Specialization Ratio (SR) as the measure to classify firms into two groups namely, focused group and diversified group. Its logic reflects the importance of the firm's core product market to that of the rest of the firm (Rumelt, 1974, 1982; Shaikh & Varadarajan, 1984). Operationally, SR is a ratio of the firm's annual revenues from its largest discrete, product-market activity to its total revenues. In the diversification literature, SR is one of the methods of choice for measuring diversification. It is easy to understand and calculate.

Rumelt (1974) was one of the first to systematically look at the problem of diversification. He classified firms into three groups— (1) single product firms with $SR \geq 0.95$; (2) moderately diversified firms with SR values between

$0.95 < SR \leq 0.7$. This group includes dominant, relatedly diversified and unrelatedly diversified firms; (3) the highly diversified category of firms have $SR < 0.7$ and include conglomerates, relatedly-constrained and relatedly-linked firms. Rumelt calls a firm moderately diversified if its sales from its dominant business lies between 95 percent and 70 percent of its total sales, and he calls a firm highly diversified if the sales from its dominant business is below the 70 percent mark.

This study uses an alternate classification scheme. The focused group consists of those firms with $SR > 75$ percent. This cutoff point was chosen because it implies that one business segment accounts for more than three-fourths of the total revenues and hence, the firm can be considered focused. The diversified group consists of firms with $SR \leq 50$ percent. The logic for choosing this cutoff point is that $SR \leq 50$ percent implies that no business segment accounts for absolute majority of the revenues. The firms between these two categories were eliminated in order to have two clearly distinct groups with significant differences between them.

Financial economists and management researchers mean slightly different things when they refer to a diversified firm. To financial economists, a diversified firm is essentially a conglomerate with unrelated businesses in its portfolio. They do not consider related diversification as being diversified because, to them, these do not represent different product-market investments. Rumelt (1974) argues that relatedly diversified firms, with an SR ratio between 0.95 and 0.7, perform better than unrelatedly diversified firms with SR less than 0.7.

• Financial Leverage

The use of debt in the firm's capital

structure is known as financial leverage. Use of debt can greatly magnify both gains and losses. It rewards the shareholders, but it also has the potential for financial distress. Financial leverage concentrates the firm's business risk on its shareholders (Brigham & Ehrhardt 2002). Debt ratio can be calculated either with total debt or long-term debt. The Long-term Debt/Assets ratio is used to study the financial leverage. This is not a departure from normal practice as several other studies (Ghosh, Cai, Li (2000), Booth, et. al (2001), Burgman (1996)) have taken only long-term debt to calculate the debt ratio. Furthermore, financial theorists make a distinction between the capital structure and financial structure. Accordingly, financial structure consists of the entire right hand side of the balance sheet (entire liabilities and equity side), whereas, capital structure includes only long-term sources of funds as shown on the balance sheet. Thus, using long-term debt is consistent with the concept of capital structure.

Table 1 is presented below to show the debt ratio of the diversified and focused groups for the selected four industries:

Analysis of Table I

Table I reveals the following: It is observed that 64% of the diversified firms in the chemical industry are using above-average debt when compared to only 39% under the focused group. A similar pattern is found in the case of the paper industry where 70% of the

firms, under diversified group, are using above average debt when compared to only 33% of the firms under the focused group.

On the other hand, the food industry shows an inverse trend with only 22% of the firms, under the diversified group, are using above average debt when compared to 53% of the firms under the focused group. The trend is not very clear with in the electronics industry. There is no clear pattern found when a comparison is made between the diversified and the focused groups for the above-average debt ratio category. In some cases, majority of the focused firms are under above-average debt ratio category, whereas in other cases, the opposite holds true. The finding is consistent with the study of Singh, Davidson, and Suchards (2002) study when they conclude that the product diversification is possibly unrelated to debt usage.

Implications – Based on the above observations, it may be inferred that there is no positive relationship between the degree of diversification and the financial leverage. It may be concluded that the primary nature of business, rather than diversification strategy, influences the capital structure choice for the firms.

• Performance

Return on common equity (ROE) is an accounting rate of return and one of the best indicators of financial perfor-

mance. It relates the earnings of a firm with the funds belonging to the owners. Other such measures could include: return on capital (ROC), return on assets (ROA) and return on sales (ROS). The idea behind these measures is perhaps to evaluate managerial performance — how well is a firm's management using the assets (as measured in dollars) to generate accounting returns per dollar of investment, assets, or sales and how well is a firm's management earning for the real owners of the firm. The problems with these measures are well known. Accounting returns include depreciation and inventory costs and affect the accurate reporting of earnings. Asset values are recorded historically and usually overstate performance. Since accounting conventions make these variables unreliable, financial economists prefer market returns or discounted cash flows as measures of performance. The present study uses ROE, for the sake of consistency, as the measure of performance.

Due to the difficulty inherently associated with the data collection for the cash flows and their timing, researchers have frequently used return on equity (ROE) as a control variable in judging top management performance, and for making executive compensation decisions. The average return on equity (AROE), and its standard deviation for each of the two groups, is also calculated. Table II reflects the average ROE of the diversified and focused groups for the four selected industries.

TABLE 1
Diversification and Capital Structure

	Chemicals		Electronics		Food		Papers	
	Above-Average Debt Ratio	Below-Average Debt Ratio	Above-Average Debt Ratio	Below-Average Debt Ratio	Above-Average Debt Ratio	Below-Average Debt Ratio	Above-Average Debt Ratio	Below-Average Debt Ratio
Focused Group (SR<=0.75)	39	61	39	61	53	47	33	67
Diversified Group (SR<=0.50)	64	36	36	64	22	78	70	30

TABLE 2
Diversification and Performance

	Chemicals		Electronics		Food		Papers	
	Above-Average ROE	Below-Average ROE	Above-Average ROE	Below-Average ROE	Above-Average ROE	Below-Average ROE	Above-Average ROE	Below-Average ROE
Focused Group (SR \geq 0.75)	58	42	60	40	51	49	50	50
Diversified Group (SR \leq 0.50)	86	14	71	29	87	13	50	50

Analysis of Table II

Table II reveals the following: In terms of ROE, the diversified group seems to be performing much better for all the selected industries except Papers when compared to the firms under the focused group. The majority of the firms under the focused group, have recorded above average ROE, but the percentage of firms is relatively higher in case of diversified group.

Implications – The diversified group seems to be a better performer than the focused group for majority of the selected industries. However, the results are not supportive enough to make any generalization. This is somewhat consistent with the results of the earlier studies where the researchers have found that the relationship between diversification and performance is complex and is affected by intervening and contingent variables.

• Volatility of Earnings

Variation in earnings is generally referred to as the earnings' volatility. The companies with better performance should have less variability in their earnings. The volatility of earnings does not necessarily imply risk. This is because of the fact that the earnings fluctuate from month to month or from year to year. However, if this results in volatility in the stock price, then, earnings volatility could imply risk.

This study takes into account the average earnings for the three-year

period. This implies that any variation in earnings over this period, such as this, must have been reflected in the variation in the stock price of these companies. Therefore, it can be assumed that the volatility of earnings for this study reflects the riskiness of these companies. The Standard Deviation (SD) of ROE is presented in Table III to show the volatility of earnings of the companies for the diversified and focused groups.

Analysis of Table III

Table III reveals the following: Table III presents significantly clear results for the earnings' volatility of the firms under diversified and focused groups. All the four industries have shown the same pattern viz., less

volatility for the diversified group. The findings are strongly supporting the notion that the diversification helps in reducing the overall risk. An earlier study (Raynor 2002) shows that diversification can add value not by increasing performance, but by reducing risk. This is a very significant result of the study as the results are consistent in all the industry groups.

Implications – Based on the above analysis, it may be inferred that diversified companies are less volatile when compared to their counterparts in the focused group. In order to take the analysis a step further, the coefficient of variation (CV) was computed.

TABLE 3
Standard Deviation of ROE

	Chemicals STD	Electronics STD	Food STD	Paper STD
Focused Group	15.66	4.97	5.22	6.68
Diversified Group	5.88	2.46	2.87	2.91

TABLE 4
Coefficient of Variation (CV)-ROE (# of times)

	Chemicals	Electronics	Food	Paper
Focused Group	1.48	1.88	0.54	1.10
Diversified Group	0.55	0.93	0.30	0.48

Analysis of Table IV

Table IV reveals the following: The CV captures risk and return in a single statistic. The table reveals that the risk per unit return (CV) is lower for the diversified group in all the four industries examined in the study. The fact that this result has been observed across all four industries is significant. Hence, there is empirical support for the notion that diversification does seem to lower risk.

The CV results are consistent with the results for the standard deviation shown in the previous table.

Results and Discussion

Using the Compustat and Mergent databases, in each of the four industries, firms were classified into two groups: Focused group ($SR > 0.75$), and Diversified group ($SR < 0.5$), for each of the three years, from 1999 to 2001, for which complete segmental data was available. After classification, the average debt ratio over the three-year period was determined for each firm. Then, an average for each industry group was calculated. This process was replicated for all four industries. Firms were then separated into an "above-average" debt ratio group and a "below-average" debt ratio group. In each industry, the number and percentage of "above average debt" and "below average debt" firms was calculated for both the diversified as well as the focused groups.

The relationship between the diversification and the capital structure is shown in Table I. The results do not indicate any positive relationship between diversification and financial leverage. It may be concluded that the primary nature of business, rather than diversification strategy, influences the capital structure choice for the firms. Table II is presented to show the average ROE of the diversified and focused groups. Though the majority the industries in the diversified group are performing better than the focused group, still the results are not strong enough to make any generalization. Table III is presented to show the variability of earnings for the diversified and focused groups. These results look strong, as the standard deviation of the diversified

group is less than their counterparts under the focused group for all the four industries.

Summary and Conclusions

The study began with questions regarding discrepancies in empirical and theoretical investigations into the relationship between firm diversification and financial leverage. The study also covers an analysis of diversification and performance. The examination of diversification and financial leverage has received very little attention in the literature. However, there are several studies, with different results, on diversification and performance. Thus, this study focuses on the area which has not been explored much.

This applied research study was undertaken to determine whether the companies use corporate diversification as a strategy to lower their business risk and enhance their debt capacity. Another motivating factor for this study was to determine whether there is a cross-sectional relationship between capital structure and corporate diversification.

Segment information and the financial information were gathered from two databases. Average debt ratio, based on three-year data, was used and grouped into "above-average" and "below-average" categories. Specialization ratio was calculated based on segment revenues. The study is based on a large sample of companies for four different industry groups. The study finds no positive relationship between the degree of diversification and the use of debt in the capital structure of these companies. It is not known whether a positive relationship between diversification and capital structure does not exist at all or whether the diversified firms are underutilizing their potential to use more debt in their capital structure. There is a need for further research in this area to explore this relationship by using additional or alternative variables as well as further classifying diversification into related and unrelated parts.

The study also covers an examination of the relationship between diversification and performance. Return on common equity (ROE) is widely used as an indicator of financial performance; therefore, average ROE is calculated for

three years for the diversified and focused groups. The results indicate that though majority of the industry groups show that the diversified firms do better in comparison to their counterparts in the focused group, a generalization may not be possible. This is quite consistent with some earlier studies where the researchers are of the opinion that the relationship between diversification and performance is complex and is affected by intervening and contingent variables. An analysis of the standard deviation of ROE has been taken into account to study the volatility of earning for the diversified and focused groups. The results are clear and strongly support the notion that the diversified firms are less volatile, in terms of their earnings, when compared to firm under focused group. This holds good for all the four industry groups.

A classification of diversified and undiversified groups, based on SR remains arbitrary. Although SR is an acceptable measure of diversification, the entropy measure (Hoskisson, et. al., 1993) can also be used as a measure of diversification in a future study. This study has a macro focus, as it does not study the likely sub-categories such as related and unrelated diversification. The Long-Term Debt/Total Assets ratio is the only variable used in this study as a measure of financial leverage. A future study could explore the debt servicing capacity of the firms along with the debt ratio. This study takes into account only ROE as the financial performance variable. An analysis of operational performance may also necessitate the study of EBIT and the net present value of the cash flows. The selection of four industries helps to evaluate the results across the wide spectrum of industries. The study could be replicated using data from other industries in order to confirm the results.

The study focuses on diversification, capital structure, and performance. Since research in this area is very limited, future studies may take into account some other performance measures such as stock returns to explore the possible existence of any relationship between diversification, financing decisions and the performance.

Finally, these issues could also be

examined using data from emerging economies such as India. This is likely to provide further insight and add to the body of literature in this area.

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