What drives firms to be more diversified?

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ABSTRACT

This study examines the motivations of firms that become more diversified. To get a clearer picture of what drives firms to be more diversified, this study uses a more appropriate benchmark. Specifically, it compares firms that increased their diversification level with a size and industry matched sample of diversified firms whose level of diversification remains the same. The study investigates the four most often cited reasons for diversification: the internal capital market, agency problems, increased interest tax shield, and growth opportunities. The results show that diversified firms that increased their level of diversification tend to have lower profitability and growth opportunities than the size and industry matched sample of diversified firms that remain their level of diversification. Firms with lower profitability and lower growth opportunities are more likely to be more diversified. Another important factor that motivates firms to be more diversified is capital expenditure. It seems that firms choose to be more diversified so that they can have a bigger internal capital market, which in turn helps the firm to reduce the underinvestment problem. In contrast, agency costs and bigger tax benefits cannot explain why the firms become more diversified. There is no significant difference in the excess value for firms that become more diversified and firms that stay their level of diversification, and the increase-segment indicator is always insignificant, which implies that for diversified firms, becoming more diversified does not destroy value.

Key words: diversification, internal capital market, agency costs, increased diversification, growth opportunities

INTRODUCTION

There are four most often cited reasons for diversification: the internal capital market, agency problems, increased interest tax shield and growth opportunities. Previous studies (for example, Anderson et al, 2000) that examine the motivations of diversification focus on the agency costs hypothesis; they usually compare the governance characteristics of diversified firms with those of focused firms, and find mixed evidence of whether agency costs prompt firms to diversify. However, the differences in governance characteristics of diversified firms and focused firms can be related to factors other than agency costs. For example, diversified firms may have lower pay-to-performance sensitivity due to their lower firm-specific risk and larger firm size. They may have higher pay-to-performance sensitivity when they were focused firms. By using a size and industry matched sample, this study can test the four above-mentioned motivations and get a clear picture on what drives firm to be more diversified. As the rationale behind firms' diversification and being a more diversified firm are about the same, this study can also give some inference on what drives firm to diversify.

The results of this study contribute to the literature in two important ways. First, it uses a better benchmark to study whether bigger internal capital market, higher agency costs, increased tax benefits or more growth opportunities are related to firms' decision to be a more diversified firm. It is shown that the bigger internal capital market (reduce the underinvestment problems) and more growth opportunities can explain why firms choose to be more diversified. In contrast, higher agency costs and increased tax benefits cannot explain why firms increase their level of diversification. Second, the increase-segment indicator, which captures the valuation effect of being more diversified, is always insignificant, which implies that for diversified firms, becoming more diversified does not destroy value.

The remainder of this study is organized as follows. Section 2 gives an overview of literature on possible reasons for diversification. Section 3 explains why a new benchmark is needed. Section 4 describes the data, sample selection, and methodology. Section 5 provides the results. Section 6 draws the conclusion.

POSSIBLE REASONS FOR DIVERSIFICATION

Reduce Underinvestment Problem

One reason that firms choose to be more diversified is related to underinvestment problem. When the cost to the old shareholders of issuing shares at a bargain price is higher than the projects' NPV, the manager who acts in the interest of the existing passive shareholders may choose to forgo positive NPV project. This causes underinvestment problems as described in Myers and Majluf (1984) Matsusaka and Nanda (1996) suggest that when external financing is costly, a diversified firm owns a valuable real option in allocating capital across segments and being able to avoid external financing more often. More diversified firms have a larger internal capital market, so it is more capable of avoiding the external financing and reducing the underinvestment problem.

Greater Agency Costs

Another reason that firms choose to be more diversified is due to their higher agency costs. Without effective governance mechanism, managers may choose to benefit themselves at the expense of the shareholders. Diversification can benefit managers through many ways. First, it can reduce the managers' non-diversifiable employment risk (Amihud and Lev, 1981). Second, it can increase the firm size, and managerial compensation, power and prestige are related to firm size (Jensen, 1986). Third, it can make the manager indispensable to the firm (Shleifer and Vishny, 1989). As a result, managers may choose to be more diversified even though it destroys firm value.

Seek Growth Opportunities

Firms can also choose to be more diversified because they want to seek growth opportunities to support their future growth. If the industries that the firm is currently in have very poor growth opportunities, the firm may choose to diversify into a new industry that have better growth prospects, which will create more value for shareholders.

Increased Interest Tax Shield

One potential benefits arise from the imperfectly correlated earning streams of different divisions of diversified firms. If a merger of the two firms entails no costs, it will benefit both firms because the resulting cash flows will be less volatile (Stulz, 1990). This decreased volatility of cash flows also gives the more diversified firms greater debt capacity than the less diversified firms of similar size. The larger debt capability can benefit the firm by increasing interest tax shield.

WHY NEW BENCHMARK

Previous literature usually compares the governance structures of focused firms and that of diversified firms to draw conclusions on whether agency costs are the reason for diversification (Anderson et al, 2000). However, diversified firms and focused firms can have different governance structures due to reasons other than agency costs. For example, the observation that managers of diversified firms have higher levels of compensation may be due to their higher managerial expertise and ability (Rose and Shepard, 1997; and Berry, Bizjak, Lemmon, and Naveen, 2006). Diversified firms can also have more outsiders on board for consulting purposes (Coles, Daniel, and Naveen, 2010). Furthermore, industry factors affect both firms' decision to diversify and their governance characteristics. Campa and Kedia (2002) find the industry instruments can significantly explain the probability to diversify, while Gillan, Hartzell, and Starks (2003) document that the governance structure is related to the industry factors such as investment opportunities and leverage. To deal with this endogeneity problem, a new benchmark is needed. That is, each diversified firm that increases segments is matched by firm size, number of segments and SIC code with a firm whose number of segment stays unchanged.

METHODOLOGY

The sample consists of all firms with data reported on the Compustat Industry Segment database from 1992 to 2003. The Berger and Ofek (1995) sample selection criteria and method to compute excess value are adopted. To construct the industry and size-matched sample, each firm that increased segments are matched with a firm that did not change their number of segments and had the same number of segments as the diversifying firm in the year prior to diversification. In addition, the matched firm has to have assets within 10% of the assets of the diversifying firm and has assets closest to that of the diversifying firm. If a firm cannot be matched within the same four-digit SIC code, then it is matched first at the three-digit, then at the two-digit, and if needed at one-digit SIC code level. If no one-digit SIC code matched firm is found, the firm that is closest in assets to the diversifying firm will be selected. Out of the sample of 756 diversifying firms, 90 firms are matched by 4-digit SIC code, 59 are matched by 3-digit SIC code, 217 are matched by 2-digit SIC code, 270 are matched by 1-digit SIC code, and 120 are matched by assets only. The governance data are from Compact Disclosure. To test the four possible reasons why firms choose to increase their diversification level, the capital-to-sales ratio, the corporate governance variables, the Tobin's q and leverage are used to proxy for the underinvestment problem, the agency costs, the growth opportunities and the interest tax shield, respectively.

RESULTS

Table 1 (Appendix) compares diversifying firms with a size and industry-matched sample of firms that has the same number of segments as the diversifying firms before diversification. In comparison to their peers in the same industry, diversifying firms have lower EBIT-to-sales ratio, capital expenditure-to-sales ratio, R&D expenditure and Tobin's q ratio than firms that stay focused. For example, the mean (median) EBIT-to-sales ratio for firms that choose to be more diversified is 0.075 (0.079), compared with 0.086 (0.089) for firms that chose to remain their level of diversification. There are no significant differences in the excess value, firm size and leverage ratios for diversifying firms and firms that stay focused. It seems that firms that choose to be more diversified tend to be those with low profitability and poor growth opportunities; they may diversify to another industry for better growth opportunities. The low capital expenditure-to-sales ratio of these firms implies that they may have underinvestment problems and they choose to diversify to solve these problems.

Table 2 (Appendix) compares the governance characteristics for these two samples of firms. There are no significant differences in all of the governance variables for firms that choose to be more diversified and firms that choose to remain their level of diversification. This implies that agency costs may not be very important in explaining firms' decision to be more diversified.

In Table 3(Appendix), the excess value is regressed on increased-segment indicator, and the controls for size, profitability, capital expenditures, leverage, and growth opportunities. The increased-segment indicator is used to capture the value creation (or losses) related to increased diversification. In all the regressions, the increased-segment indicator is always insignificant, which means that there is no lost

value from increased diversification. This is in direct contrast with the earlier literature which compares the focused firms with diversified firms and documents a significant diversification discount. However, recent literature (example.g., Campa and Kedia, 2002) find that diversification discount disappears once the endogeneity problems are controlled for. As this study compares diversified firms that choose to be more diversified and diversified firms that choose to remain their level of diversification in the same industry, the results are not affected by the differences in firm characteristics and industry characteristics of focused firms and diversified firms, thereby support the recent findings that diversification does not destroy value. Consistent with previous literature, firms with larger size, higher profitability and capital expenditure ratio have higher excess value. Firms with higher leverage and more growth opportunities also tend to have higher excess value.

In the first three columns of Table 4 (Appendix), none of the governance variables are significant. In the last column of the table where all the governance variables are included, only institutional ownership is positively related to the probability that a firm chooses to diversify. This is inconsistent with the agency costs explanation of why firms choose to diversify. Leverage is never significant in all of the regressions, implying the increased interest tax shield is not the reason for firms to be more diversified. In the first two columns, the both the EBIT-to-sales ratio and Tobin's q are negatively and significantly related to the probability of being more diversified, which implies that firms that do not perform well and have exhausted their growth opportunities are more likely to be more diversified. Capital expenditure-to-sales ratio is negatively significant in three of the four regressions, which means that firms may choose to be more diversified to deal with their underinvestment problems.

CONCLUSION

This study examines the four most often cited reasons for diversification, which are the internal capital market, agency problems, increased interest tax shield and growth opportunities. Compared with the size and industry matched sample of diversified firms that do not change their diversification level, diversified firms that become more diversified tend to have lower profitability and fewer growth opportunities. It is also important to note that firms with lower profitability and fewer growth opportunities are more likely to increase their diversification level. This indicates that firms may choose to be more diversified in order to seek growth opportunities. Firms with lower capital expenditure ratio are also more likely to increase their diversification level, which implies that firms choose to be more diversified so that they can have a bigger internal capital market, which in turn can help the firm reduce the underinvestment problem. In contrast, agency costs and tax benefits can not explain why the firms become more diversified. The only governance variables that is significant is institutional ownership, but it is positively related to firms' decision to be more diversified, which is inconsistent with the agency costs explanation of diversification. Leverage is insignificant in all model specifications, which means that firms do not choose to increase diversification level to take advantage of the possible tax benefits. Overall, this study suggests that relative to agency costs and tax benefits seeking for a bigger internal capital market to solve the

underinvestment problems and better growth prospects are more likely reasons for firms to be more diversified.

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APPENDIX

Table 1. Summary Statistics for the Firms that Choose to be more Diversified and for Matched Firms that Choose to Remain their Level of Diversification

This table displays descriptive statistics for the firms that choose to be more diversified and matched firms that choose to remain their level of diversification. *EXVAL* is the natural logarithm of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed value of its segments, with each segment's imputed value equal to the segment's sale multiplied by its industry median ratio of capital to sales. *NSEG* is the number of business segments in which a firm operates as a measure of firm diversification. *ASSETS* is the book value of total assets. *EBIT/SALES* is the ratio of EBIT to total sales, *CAPX/SALES* is the ratio of capital expenditures to total sales, *LEVER* is the ratio of interest bearing debt to total assets, *R&D/SALES* is the ratio of R&D expenditures to total sales, and *TOBINQ* is the market to book ratio of the firm. The table includes 1,512 firm-year observations from 1992 through 2003. 756of these belong to diversifying firms, and the remaining 756 belong to matched firms that stay focused.

Variable	More Diversified (N=756)			No Change in Diversification (N=756)			Difference (More Diversified – No Change in Diversification)	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	T-Stat	Z-Stat
EXVAL	-0.011	-0.034	0.573	-0.013	0.008	0.564	0.07	-1.21
NSEG	2.733	2.000	1.002	2.727	2.000	0.991	0.11	0.03
ASSETS ($ m.)	3294.430	628.926	9554.160	2713.730	602.641	5740.260	1.43	0.23
EBIT/SALES	0.075	0.079	0.129	0.086	0.089	0.110	-1.82[c]	-2.03[b]
CAPX/SALES	0.074	0.042	0.110	0.082	0.046	0.114	-1.35	-1.71[c]
LEVER1	0.282	0.273	0.198	0.283	0.273	0.209	-0.06	0.03
R&D/SALES	0.019	0.000	0.043	0.023	0.000	0.050	-1.93[c]	1.06
TOBINQ	1.312	1.062	0.857	1.406	1.096	0.907	-2.07[b]	-1.00

[a]: Significant at 1% level;. [b]: Significant at 5% level;. [c]: Significant at 10% level.

Table 2. Summary Statistics of Governance Characteristics for the Firms that Choose to be more Diversified and for the Matched Firms that Choose to Remain their Level of Diversification

This table displays summary statistics of the governance characteristics for firms split by firms that choose to be more diversified and matched firms that choose to remain their level of diversification. All the variables are from the Compact Disclosure dataset. *TCC* is total compensation for CEO, *INSIDER* is the percentage of insiders on board; *BOARDSIZE* is the board size; *DUAL* is a dummy variable that takes the value one if the CEO is also the Chair of the Board, and is zero otherwise; and *CEOOWNPC, INSTOWNPC*, *BLOCKOWNPC, INSOWNPC*, and *DIROWNPC* are percentage ownership by CEO, institutions, blockholders, insiders, and directors, respectively. The table includes 1,512 firm-year observations from 1992 through 2003. 756 of these belong to diversifying firms, and the remaining 756 belong to matched firms that stay focused. The difference in mean (median) is conducted using a t-test (Wilcoxon two-sample z-test).

Variable	More Diversified (N=756)			No Change in Diversification (N=756)			Difference (More Diversified – No Change in Diversification)	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	T-Stat	Z-Stat
TCC ($000)	1199.568	704.766	1682.369	1068.176	652.263	1157.153	1.54	1.01
CEOOWNPC	0.035	0.005	0.081	0.028	0.004	0.066	1.29	1.34
INSIDER	0.283	0.250	0.192	0.279	0.231	0.195	0.44	0.60
BOARDSIZE	8.747	8.000	3.690	8.763	9.000	3.788	-0.08	-0.38
DUAL	0.623	1.000	0.485	0.637	1.000	0.481	-0.53	-0.53
INSTOWNPC (%)	43.884	47.125	27.612	43.171	45.290	26.515	0.51	0.83
BLOCKOWNPC (%)	33.851	29.250	28.465	31.942	26.480	27.611	1.31	1.50
INSOWNPC (%)	12.583	2.880	19.731	12.305	3.135	19.613	0.27	-0.44
DIROWNPC	0.051	0.007	0.103	0.042	0.006	0.086	1.57	0.63

[a]: Significant at 1% level;. [b]: Significant at 5% level;. [c]: Significant at 10% level.

Table 3. Regression Results for the Firms that Choose to be more Diversified and for the Matched Firms that Choose to Remain their Level of Diversification

This table contains results from regressing excess value on increase-segment indicator, and various control variables. Excess value is computed using the Berger and Ofek (1995) method, which is the natural logarithm of the ratio of a firm's actual value to its imputed value. LSIZE is the natural logarithm of total assets, EBIT/SALES is operating profit to sales ratio, CAPX/SALES is the capital expenditure scaled by sales, LEVER is the ratio of interest bearing debt to total assets, and TOBINQ is the market to book ratio of the firm. The final four columns provide results from the fixed firm and calendar year effect.

Variable	*OLS Regression*			*Fixed Effect Regression*		
	(1)	(2)	(3)	(1)	(2)	(3)
Intercept	-0.440[a]	-0.450[a]	-0.898[a]	-1.822[a]	-1.603[b]	-3.036[a]
	(-8.19)	(-8.16)	(-16.63)	(-2.98)	(-2.56)	(-5.45)
Increase-segment Indicator	0.011	0.011	0.034	-0.016	-0.015	-0.005
	(0.38)	(0.38)	(1.35)	(-0.51)	(-0.47)	(-0.2)
LSIZE	0.051[a]	0.050[a]	0.051[a]	0.145[a]	0.118[b]	0.184[a]
	(6.30)	(6.15)	(7.08)	(3.08)	(2.35)	(4.2)
EBIT/SALES	0.721[a]	0.723[a]	0.319[a]	0.636[a]	0.657[a]	0.108
	(5.89)	(5.90)	(2.88)	(3.20)	(3.30)	(0.6)
CAPX/SALES	0.509[a]	0.493[a]	0.429[a]	0.543	0.528	0.267
	(3.98)	(3.81)	(3.72)	(1.63)	(1.59)	(0.92)
LEVER		0.058	0.302[a]		0.288	0.452[a]
		(0.82)	(4.68)		(1.55)	(2.78)
TOBINQ			0.292[a]			0.370[a]
			(19.77)			(12.64)
OBS	1,490	1,490	1,490	1,490	1,490	1,490
R2	0.08	0.08	0.27	0.89	0.89	0.92

a: Significant at 1% level;. b: Significant at 5% level;. c: Significant at 10% level.

Table 4. Conditional Logistic Regressions Models of the Decision to Diversify (Matched Sample Approach)

This table contains results from conditional logistic regression models of firms' decision to diversify. The table includes 1,512 firm-year observations from 1992 through 2003; 756 of these belong to single segment firms that choose to be more diversified, and the remaining 756 belong to industry- and size-matched firms that remain their level of diversification. The dependent variable equals to one if the firm is a diversified firm that increased its number of segments. *LSIZE* is the logarithm of book value of total assets, *EBIT/SALES* is the ratio of EBIT to total sales, *CAPX/SALES* is the ratio of capital expenditures to total sales, and *LEVER* is the ratio of total debt to total assets, *TOBINQ* is the market to book ratio of the firm. *TCC*, *INSIDER, BOARDSIZE, DUAL, CEOOWNPC, INSTOWNPC,* and *BLOCKOWNPC* are from the Compact Disclosure dataset. *TCC* is total compensation for CEO, *INSIDER* is the percentage of insiders on board; *BOARDSIZE* is the board size; *DUAL* is the CEO is also the Chair of the Board; and *CEOOWNPC, INSTOWNPC,* and *BLOCKOWNPC* are percentage ownership by CEOs, institutions and blockholders, respectively.

Variable	(1)	(2)	(3)	(4)
LSIZE	0.195	0.303[b]	0.416	0.287
	(0.69)	(2.25)	(1.90)	(0.83)
EBIT/SALES	-1.652[a]	-0.968[a]	-0.932	-1.340
	(5.22)	(3.09)	(1.16)	(1.89)
CAPX/SALES	-3.154[a]	-1.305[a]	-2.942[a]	-1.357
	(7.49)	(3.35)	(2.83)	(0.42)
LEVER	0.110	0.034	0.177	0.031
	(0.10)	(0.01)	(0.11)	(0.00)
TOBINQ	-0.136[b]	-0.142[a]	0.017	0.055
	(2.55)	(4.00)	(0.02)	(0.12)
TCC	0.000			0.000
	(1.72)			(0.05)
INSIDER		0.364		0.815
		(1.17)		(1.07)
BOARDSIZE		-0.012		-0.051
		(0.29)		(0.90)
DUAL		-0.096		0.135
		(0.60)		(0.24)
CEOOWNPC			1.104	0.986
			(0.56)	(0.30)
INSTOWNPC			0.006	0.010[b]
			(1.26)	(1.96)
BLOCKOWNPC			-0.002	-0.002
			(0.37)	(0.13)

[a]: Significant at 1% level;. [b]: Significant at 5% level;. [c]: Significant at 10% level.