E C O N O M I C S B U L L E T I N

More on corporate diversification, firm size and value creation

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Abstract

This paper examines the impact of corporate diversification and firm size on the value creation over the 1997-2005 period for twenty-five non-banking firms listed on Tunis Stock Exchange. Our results confirm previous studies in that shares of diversified firms sell at a discount. Moreover, value creation is found to be positively associated with larger firms.

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1. Introduction

This study offers further empirical insights on the determinants of value creation by examining the value effect of corporate diversification strategies and firm size factor. We define corporate diversification by a situation in which a company expands the scope of operations though diversification into new businesses. The evidence is intentionally derived from an emerging market country for comparative purposes with a large amount of empirical findings on developed countries.

From a theoretical viewpoint, it is commonly accepted that if the costs of diversification exceed its benefits, the market will discount the share price of diversified firms. Empirical results of prior researches are, however, rather inconclusive. Indeed, several works suggest that diversified firms create value thanks to economies of scale, greater debt capacity, greater debt capacity due to risk reduction and a great number of profitable activities (e.g., Stein, 1997 and references therein). In contrast, other studies document value losses following corporate diversification (e.g., Berger and Ofek, 1995 and references therein). For instance, Berger and Ofek (1995) examine the value effects of diversification using data from 3,659 American firms and find that diversification causes value reduction which averages 13% to 15% for all firm sizes. They also report that the value loss is smaller when the segments of the diversified firms are in related industries. Recent studies focusing on the data of various developed countries generally reach similar results (e.g., Mansi and Rebb, 2002; Denis *et al.*, 2002; Barnes and Hardie-Brown, 2006). In emerging markets, Lins and Servaes (2002) also find that diversified firms trade at a discount of approximately 7% compared with single-segment firms and they are also less profitable than single-segment firms. The results of Chakrabarti *et al.* (2007) for East Asian firms are somewhat mitigated because diversification negatively impacts performance in more developed institutional environments while improving performance in the least developed environments.

As far as the firm size is concerned, the majority of previous studies assess that the size of a firm has many effects on its performance, and indirectly on its growth opportunities and share prices. For example, Banz (1981) find a negative relation between firm size and stock returns. In Fama and French (1995)'s three-factor model, firm size plays a crucial role in explaining the time-variation of stock returns. Then, examining whether the value creation of a diversified firm depends on the size factor is an intriguing question.

Using data from twenty-five non-banking firms listed in the Tunis stock exchange over the 1997-2005 period, we show evidence of a decreasing relation between corporate diversification and value creation, and an increasing relation between the value creation and the firm size.

The rest of the paper is organized as follows. Section 2 describes the methodology and the data used in the paper. Section 3 discusses the results. Section 4 concludes the paper.

2. Empirical method and data

In the spirit of the method proposed by Berger and Ofek (1995), we consider the following time-series cross-sectional regression model:

$$EV_{i,t} = \beta_0 + \beta_1(DD_{i,t}) + \beta_2(FS_{i,t}) + \beta_3(NOPSR_{i,t}) + \beta_4(ECAR_{i,t}) + \varepsilon_{i,t} \quad (1)$$

Where $EV_{i,t}$ is the value creation measure for the firm *i* at time *t*, also referred as excess value of the firm. $DD_{i,t}$ refers to a diversification dummy that taking a value of 1 if the firm is diversified and zero otherwise. $FS_{i,t}$ refers to the firm size which is measured by taking the log of the total assets. $DD_{i,t}$ and $FS_{i,t}$ variables are central to this study because they brings answering elements of the questions posed above. $NOPSR_{i,t}$ corresponds to the ratio of net operating profit before exceptional items to total sales turnover. $ECAR_{i,t}$ refers to the ratio of shareholders' equity changes to total assets. The last two variables control for the profitability and equity-used levels respectively. It is expected that they positively impact the value creation. We compute $EV_{i,t}$ for each diversified firm as follows:

$$EV_{i,t} = \log\left(\frac{\text{Actual market value}_{i,t}}{\text{Imputed market value}_{i,t}}\right) \quad (2)$$

Where the actual market value of the diversified firm *i* at time *t* refers to the sum of the market value of the firm *i*'s equity and the book value of its debts. The imputed market value is obtained by summing its segment sales levels times the corresponding market-to-sales ratio of a comparable single-segment firm across all segments. Accordingly, a negative (positive) value of $EV_{i,t}$ indicates a value loss (gain). Note that the comparable single-segment firm is the one operating in the same sector as the diversified firm under consideration and that its market-to-sales ratio is determined by dividing the sum of the market value of equity and the book value of debts by total sales.

The time-series cross-sectional model described in equation (1) is estimated for a sample of twenty-five firms listed on the stock exchange of Tunis, of which fifteen are focused firms. Banking and insurance firms are excluded because they are not well-enough diversified across sectors. The study uses annual observations over the 1997-2005 period. All variables are constructed from information presented in publicly financial statements. Overall, we have 225 observations per variable.

Table I presents the statistical properties of all considered variables. As we can see, the excess value variable averages 0.544 with a standard deviation of 114.1%. Since there are ten diversified firms in the studied sample, the diversification dummy variable averages 40%. The sample means of the firm size, profitability and equity changes to assets ratio are respectively 17.813, 15.3% and 1%.

3. Results

Table II provides the generalized least squares (GLS) estimates for the empirical model described in equation (1). The model is globally suitable for predicting the dynamic changes in the dependent variable as indicated by the high significance of the F-statistic and a high adjusted R-squared coefficient. If we take a close look on the model's estimated coefficients, we find that they are all highly significant at the conventional levels.

Indeed, the coefficient associated with the diversification dummy variable is negative and statistically significant, implying that diversified firms are less valuable than focused firms. Our results are effectively consistent with the findings of the majority of previous studies. Agency problems, asymmetric information and inefficient use of internal capital markets can be identified as major obstacles to value creation. As regards the coefficient associated with the ratio of shareholders' equity changes to sales, its negative sign contrasts our expectation and indicates that increases in shareholders' equity following corporate diversification is not primar-

ily a source of value creation. The cross-sectional results also show that the value creation increases with the log of the firm's total assets.

In what follows, the focus is on the value effects of the firm size because it can be measured by a variety of ways, and in this case, impact the value creation differently. For example, one can view the log of the total assets used in this study as an imperfect measure of firm size by arguing that it only reflects the size of financial resources employed by sample firms, but does not necessarily indicate whether firms are small or large. As a robustness checking, we proceed to divide our sample into two subsamples, small-sized and large-sized firms, and re-examine the interaction between value creation and firm size. The result reported by Table I can be only confirmed if the group of large-sized firms creates more values than that of small-sized firms.

We base on the $FS_{i,t}$ variable to construct our subsamples. Firms are admitted into the small-sized firm group if the log of their total assets falls below the arithmetic mean of $FS_{i,t}$ which is equal to 17.813 (see, Table I). The large-sized firm group contains firms with the log of the total assets exceeding 17.813. Accordingly, we obtain sixteen small firms and nine large firms. Table III reports the estimation results of the empirical model for small-sized and large-sized firm samples.

It appears that the results for two subsamples are practically identical to those reported in Table II. For both cases, we find a negative link between corporate diversification and value creation, and a positive link between the ratio of equity changes to total assets and value creation. Concerning the size factor, its impact on value creation is negative for small-sized firms (-36.9%) and positive for large-sized firms (16.6%). This phenomenon can be explained by the resource constraints and financing problems of small firms. Except for the value effect of firm size which might be specific to Tunisian listed firms over the studying period, our result, globally in line with Campa and Kedia (2002)'s findings, typically leads us to conclude that the more important is the size, the higher is the value creation.

4. Conclusion

This paper investigated the empirical relationship between corporate diversification strategies, firm size and value creation. Using annual data from twenty-five non-banking firms listed in the Tunis stock exchange, we found strong evidence of a discount on diversified firms. Similar results are also provided by previous studies employing data from other emerging markets. In addition, the corporate diversification decreases the value regardless of the firm size. As far as size factor is concerned, we documented that value creation increases with firm size, either on full sample or subsamples.

Table I
Descriptive statistics

	EV	DD	FS	NOPSR	ECAR
Mean	0.544	0.400	17.813	0.153	0.010
Maximum	3.912	1.000	21.019	0.961	0.448
Minimum	-1.927	0.000	16.012	-0.275	-2.784
Standard deviation	1.141	0.491	1.026	0.223	0.202
Skewness	0.323	0.408	0.862	1.734	-11.809
Kurtosis	2.512	1.167	4.286	6.086	165.116

Table II
Estimation results

The unequal weighted statistics are obtained by assuming the presence of cross-section heteroscedasticity. The subscript ** indicates the significance of the coefficients at 1%.

Variable	Coefficients
Constant	-4.373**
DD	-0.928**
FS	0.269**
NOPSR	1.354**
ECAR	-0.858**
Equally weighted statistics	
R^2	0.810
Adjusted R^2	0.807
F-statistic	235.212
Unequal weighted statistics	
R^2	0.417
Adjusted R^2	0.406

Table III
Estimation results: small versus large firms

The subscripts * and ** indicate the significance of the coefficients at 5% and 1% respectively. To conserve spaces, we do not report the unequal weighted statistics.

Variable	Small firm subsample	Large firm subsample
Constant	6.518**	-1.587
DD	-0.651**	-1.690**
FS	-0.369**	0.166*
NOPSR	2.028**	2.428**
ECAR	-0.169	0.172
R^2	0.602	0.729
Adjusted R^2	0.591	0.715
F-statistic	52.650	51.243

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