

Does Corporate Governance Impact Risk Management System?

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Abstract. *This paper brings forth the contribution of corporate governance to risk management system at the enterprise level. The research is a complex one, integrating both quantitative and qualitative information. The quantitative information consists of balance sheet and profit and loss account data while the qualitative one includes dummy variables reflecting the agency and monitoring costs which govern the relationship between managers and shareholders.*

Keywords: financial performance; risk management; corporate governance.

JEL Codes: G34.

REL Codes: 17B.

1. Introduction

Financial risk management has become more and more important during the last fifteen years. Globalization triggered capital market development and meanwhile the increase of the volatility which generated a high degree of uncertainty at the level of the corporate segment.

Capital structure and financial performance of companies are impacted to a high extent by the volatility peculiar to global financial markets, generating the development of the financial management which focuses on the main variables representing the source of risk – interest rate, foreign exchange, equity and commodity.

Analysts have been preoccupied with identifying potential correlations between company' value and financial management, especially from the perspective of scale economies. Implementing financial management departments create incentive to economic growth since risk mitigation techniques support wealth accumulation.

This relationship represented the research object of studies concentrated especially on non-financial firms since financial institutions imply peculiarities in terms of capital structure.

There are various theories on the contribution of risk management to shareholders' value creation. Nevertheless, imperfections of capital market – agency costs, transaction costs, taxes, and increasing costs of external financing – represent the layer by which company value may increase to the benefit of the shareholders.

Risk management tools represent the support to company' value maximization and it becomes essential in the context of capital market integration. Risk increase complemented by risk concentration may confer vulnerability to corporate segment. Therefore, risk management strategies contribute in an essential manner to value creation.

2. Database and methodology description

The case-study is concentrated on two regressions integrating variables related to risk management strategies. We consider that leverage and profitability are strongly correlated with corporate risk management and we propose to underline which are the key variables that impact them.

The database supporting the case-study includes annual financial data on 100 US NASDAQ listed companies on ten years (1997-2007).

The methodology implies Ordinary Least Squares regressions.

The first regression includes Leverage (computed as Debt reported to Equity) while the second encompasses Profitability (calculated as Net Profit reported to Turnover) as dependent variables.

The equations can be figured out as:

$$Y_{it} = \alpha + \beta \times x_{it} + \omega_{it}$$

Where

$t = 1 \dots T$ (time period);

x_{it} is a vector of explanatory variables;

α stands for the intercept;

β stands for volatility indicator;

ω_{it} stands for the error term.

The independent variables include traditional financial indicators such as liquidity, solvency and capital structure related ratios.

The innovative part of the research consists of the integration of dummy variables which reflect corporate management strategies.

The first equation integrates institutional investors as dummy variable which takes the value 1 if there are institutional investors among the company's shareholders and the value 0 if among the company's shareholders there are not institutional investors.

CEO ownership is the second Dummy variable which takes the value 1 if company's CEO possesses shares and the value 0 if company's CEO does not possess shares.

The second equation includes blockholders dummy variable which takes the value 1 if the company is held by foreign investors who possess between 5% and 10% and 0 if the company is not held by such investors

The second dummy variable includes the acquisition activities which takes the value 1 if the company develops acquisition activities and 0 if the company does not develop acquisition activities.

3. Analysis of the statistic results

In order to get a deeper insight regarding the importance of risk management strategies, there have been selected a set of financial indicators relative to leverage.

The perspective is a comparative one; data has been gathered both on US companies promoting a high leverage as well as on companies which implement more relaxing indebtedness policies.

I consider a high leverage to equal approximately one third of the total assets. Therefore, companies which have a debt to equity ratio close to one third of their assets are perceived as promoting an aggressive indebtedness policy.

In opposition, companies which have a debt to equity ratio inferior to one third of the total assets are perceived as promoting a relaxing leverage policy.

The arbitrage will be the following:

If

Leverage = [30%;100%] \times Total Assets, then company financing policy is associated with aggressive leverage

Leverage = [20%;30%] \times Total Assets, then company financing policy is associated with medium leverage

Leverage = [0;20%] \times Total Assets, then company financing policy is associated with low leverage.

Analysts agreed on the fact that leverage is the main variable which impacts the risk management strategies system (Lookman, 2003). Therefore, leverage multiplier and debt reported to tangible net worth have been selected out of the financial indicators reflecting the capital structure/solvency of the company.

The mean and median relative to the Debt reported to Tangible Net Worth (DTNW) are superior to the corporations which promote aggressive financial leverage (22.6 and 17.48 versus 4.82 and 3.21) in comparison with the median and the mean corresponding to the companies adopting low leverage. The maximum corresponding to the DTNW relative to companies which adopt aggressive leverage is highly superior to the one relative to the companies which adopt low leverage (122.69 versus 45.58).

A higher leverage is equivalent to strong corporate governance mechanisms. This conclusion is in line with the assumption made by Cremers (2005) according to which companies focused on self-financing do not have strong mechanisms specific to corporate governance.

Statistics corresponding to leverage multiplier follow-up the same direction: corresponding mean and median are superior for the companies adopting aggressive leverage (5.86 and 4.16 versus 8.91 and 9.32).

Business is run out mostly by the intermediary of the externally attracted funds. Moreover, in order to get more external funds, firms must comply with the security/covenant requirement (meaning it has to provide creditors with enough collateral proved by a high level of equity). The arbitrage concerning

leverage multiplier is not exceedingly superior as in the case of the debt reported to tangible net worth. The standard deviations corresponding to the two financial indicators show out a high degree of volatility at the level of the Debt reported to Tangible Net Worth specific to the corporations which adopt aggressive financial leverage (26.2 versus 8.41) which is in line with the assumption that their capital structure is more dynamic.

Statistic output reveals important findings in terms of corporate management strategies.

A key variable closely related to corporate management strategies is represented by growth opportunities. We used research and development expenditures (R&D) as well as tangible assets (property, plant and equipment) as proxies for growth opportunities. These proxies capture the resources invested into growth opportunities and we assume them to be positively correlated both with profitability and leverage.

The statistic output confirms the initial assumption. The coefficients corresponding to the two variables are 5% significant, underlining a consistent impact on leverage. Thus, 100% variation of R&D and tangible assets triggers 32.1% and 56.2%, respectively modification of leverage.

This finding is in line with previous research papers (Lin, Smith, 2007, Allayannis, Ofek, 2001, Gay, Nam, 1998, Dolde, 1995).

Other important variables derives from market information captured by earnings-to-price and book-to-market ratio. A lower book-to-market ratio reflects strong growth opportunities and a consistent tendency to implement corporate management strategies.

The same correlation can be figured out at the level of the earnings to price ratio; low earnings to price reflect strong growth opportunities, which validates previous findings (Gay, Nam, 1998, Berkman, Bradbury, 1996).

The statistic output reveals the negative correlation (see Annex 2). The two ratios determine a leverage variation of -0.342 and of -0.123 respectively.

Operating activities revenues capture growth opportunities. The coefficient is positive, indicating a strong contribution of operational revenues to growth opportunities.

As for the second regression, interest coverage ratio and debt ratio support corporate management strategies. High growth opportunities and high financial leverage contribute positively to profitability and to corporate risk management, in line with previous findings (Graham, Rogers, 2002, Geczy et al., 1997). Moreover, Lel (2006) pointed out that the positive association between corporate risk management strategies and leverage ratios depends on corporate governance structures.

Finance and investing decision processes are strongly related to risk management strategies, especially from the perspective of financial resources. Investment projects which are not supported by internal funds generate external equity or debt. This situation determines additional costs in terms of agency conflicts. Creditors expect yields according to the company risk profile, which determines the increase of debt cost and the decrease of company value (Myers, 1993).

Even from 1986, Asquith and Mullins highlighted that external equity triggers a negative impact on firm value since investors associate management propensity to issue new stock if the company is overvalued.

This assumption is validated by the Annex 2. Coefficients relative to gross margin (0.216) and to earnings to price ratio (-0.123) are strongly significant. Gross margin impacts positively leverage while the influence of earnings to price ratio is negative.

Risk management strategies are related to capital structure. Corporate risk management system is built up according to the availability of the firm to attract external resources. Tufano (1998) and Chang (2000) highlighted that internal financing diminishes the constraints imposed by capital market or banking system. Hedging is slightly promoted by firms which adopt pecking order behavior in terms of financial structure (Spano, 2001, Moore et al., 2000).

The correlation between financing and investment process encompasses in the context of the mix between firm growth perspectives and capital market/banking system constraints. Previous approaches pointed out that company cash flow is slightly impacted by hedging strategies (Gay and Nam, 1998; Guay and Kothari, 2003).

The negative impact of book to market ratio and of earnings to price ratio on leverage strongly supports this idea.

Current liquidity contributes positively to leverage, which underlines the idea that liquidity is an important axis of management strategies. Literature revealed that it is quite difficult to implement highly worthwhile liquidity strategies, since under certain circumstances, a high liquidity ratio is likely to determine consistent opportunity costs (Faulkender, 2005). Nevertheless, liquidity shortage may generate payment difficulties, which can lead to bankruptcy.

The empirical test highlights that a liquid company is receptive to indebtedness, confirming that good liquidity creates incentives to attract external financial resources.

1% variation of size determines a profitability variation of 0.731. Similar strong impacts are exerted by tangibility and Z-score (0.892 and 0.618 respectively). In accordance with Dionne et al. (2003), size contributes

positively to gross margin, confirming the assumption that larger firms have higher profit perspectives.

Tangibility has a positive impact on gross margin. Analysts pointed out that a high covenant supports propensity to leverage (Carpenter, 2000), being perceived positively by creditors.

Risk management strategies imply a real challenge from the perspective of the agency problems, conflicts of interest and informational asymmetries.

Ever since 1985, Smith and Stulz revealed that there are different risk perceptions from the part of the managers and shareholders. Managers tend to implement risk strategies in accordance with their risk preferences which frequently are not similar to the ones expressed by shareholders.

Nevertheless, the control exerted by shareholders on company's management triggers monitoring costs which impact negatively the financial performance. Previous approaches pointed out that shareholders' degree of dispersion influences the agency costs. According to the free rider theory, if shareholders' concentration degree is high, then monitoring costs are not likely to be afforded (May, 1995).

Berger and Ofek (1995) revealed that monitoring costs are more likely to be supported in case of institutional investors. Myers and Smith (1990) highlighted that managers pretend compensation benefits according to the assumed risk level. Since risk level increases, the reward the managers ask for is higher too.

Stulz (2001) revealed that corporate hedging strategies impact positively company cash-flow, decreasing the idiosyncratic risk. Moreover, shareholders' diversification degree improves the efficiency of business strategies.

Empirical evidence reveals similar findings. Blockholders dummy variable contributes positively to profitability, meaning that a low shareholders' dispersion is favorable to growth perspective. This is in line with the assumption that concentration of shareholders implies a high cohesion in terms of management strategies, which impacts positively the profitability.

Institutional investors and CEO ownership have positive impact on leverage.

CEO ownership dummy variable is associated with compensation benefits. Leverage becomes the corporate governance device by which informational asymmetry degree decreases.

The positive coefficients associated with dummy variables reveal certain opposite results in comparison with previous researches. Since CEO ownership is conceived as an incentive to correlate management performance with company's financial results, leverage is not figured out anymore as a corporate

governance mechanism and the expected sign of the coefficient is expected to be negative.

Empirical results are different, revealing a positive contribution of dummy variable to leverage; even if managers have benefits proportional with their management performance, which are likely to motivate them to ensure adequate management strategies and to be to a certain extent reluctant to indebtedness (from the perspective of the financial constraints) this does not trigger low leverage policy. This can be interpreted as a proof of the fact that analyzed companies are receptive to external financing.

Empirical tests focused on the main variables underlying corporate risk strategies imply some limitations.

We consider that the endogeneity of variables revealing important aspects of financing and investment decision is the main problem. To some extent, solvency, liquidity and profitability indicators are likely to integrate different levels of endogeneity.

Another challenge is represented by the accounting and the disclosure level of financial market information. It is likely that companies financial data in terms of capital structure and profitability should not incorporate the over time variations that would impact strongly the final empirical results.

Conclusions

The research approach analyzes the importance of risk management strategies within corporate environment by the intermediary of profitability and leverage as eloquent variables.

The research is a complex one, integrating both quantitative and qualitative information. The quantitative information consists of balance sheet and profit and loss account data while the qualitative one includes dummy variables reflecting the agency and monitoring costs which govern the relationship between managers and shareholders.

Risk management strategies are related to capital structure. Corporate risk management system is built up according to the availability of the firm to attract external resources.

The correlation between financing and investment process encompasses in the context of the mix between firm growth perspectives and capital market/banking system constraints.

Statistic output reveals important findings in terms of corporate management strategies.

The empirical test highlights that a liquid company is receptive to indebtedness, confirming that good liquidity creates incentives to attract external financial resources.

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Annex 1**List of variables used in the case study**

Indicator	Description	Source
Assets growth	Assets dynamic computed as the difference between the assets level in moment t and assets level in moment t-1	Balance sheet data
Book-to-market ratio	Indicator computed as the ratio between book value and market value Book value = Total assets – Total debt Market value = Price per share × Number of shares	Balance sheet and market data extracted from stock exchange reports
Earnings to price ratio	Indicator computed as the ratio between earnings and price	Data extracted from stock exchange reports
Exploration activities	Revenues from exploration activities	Profit and loss account data
Market to book leverage		
Tangibility	The weight of tangible assets into total assets	Balance sheet data
R&D	Research and development expenses	Balance sheet data
Institutional investors	Dummy variable which takes the value 1 if there are institutional investors among the company's shareholders and the value 0 if among the company's shareholders there are not institutional investors	Data extracted from stock exchange reports
CEO ownership	Dummy variable which takes the value 1 if company's CEO possesses shares and the value 0 if company's CEO does not possess shares	Data extracted from stock exchange reports

Annex 2**Statistic output relative to the leverage used as dependent variable**

	Coefficient	R-squared/Adjusted R-squared
Assets growth	0.564 (4.897) 0.001	
Book-to-market	-0.342* (1.585) 0.093	
Earnings to price ratio	-0.123(0.099) 0.076	
Exploration activities	0.214* (1.379) 0.042	
Market to book leverage	0.672 (0.738) 0.041	
Property, plant and equipment	0.321 (0.055) 0.005	
Research and development	0.562* (2.880) 0.005	
Institutional investors	0.217* (7.154) 0.134	
CEO shareownership	0.156(1.055) 0.896	0.563/0.452

Source: own calculations.

*= Significant at 0% **= Significant at 5% ***= Significant at 10%

-T statistic in brackets and standard errors below

Annex 3**List of variables used in the second regression**

Indicator	Description	Source
Interest coverage ratio	Indicator computed as the ratio between the EBIT and the interest expenses	Profit and loss account data
Gross margin	Indicator computed as the ratio between gross profit and turnover	Profit and loss account data
Debt to equity ratio	Indicator computed as the ratio between debt and equity	Balance sheet data
Return on assets	Indicator computed as the ratio between net profit and total assets	Profit and loss account data
Current liquidit	Indicator computed as the ratio between current assets and current liabilities	Balance sheet data
Size	Natural logarithm of total assets	Balance sheet data
Blockholders	Dummy variable which takes the value 1 if the company is held by foreign investors who possess between 5% and 10% and 0 if the company is not held by such investors	Data extracted from stock exchange reports
Z score	Variable computed according to the Altman function	Own calculations
Acquisition activities	Dummy variable which takes the value 1 if the company develops acquisition activities and 0 if the company does not develop acquisition activities	Data extracted from stock exchange reports
Interest coverage ratio	Indicator computed as the ratio between the EBIT and the interest expenses	Profit and loss account data
Gross margin	Indicator computed as the ratio between gross profit and turnover	Profit and loss account data
Debt to equity ratio	Indicator computed as the ratio between debt and equity	Balance sheet data
Return on assets	Indicator computed as the ratio between net profit and total assets	Profit and loss account data
Current liquidity	Indicator computed as the ratio between current assets and current liabilities	Balance sheet data
Size	Natural logarithm of total assets	Balance sheet data
Blockholders	Dummy variable which takes the value 1 if the company is held by foreign investors who possess between 5% and 10% and 0 if the company is not held by such investors	Data extracted from stock exchange reports
Z score	Variable computed according to the Altman function	Own calculations
Acquisition activities	Dummy variable which takes the value 1 if the company develops acquisition activities and 0 if the company does not develop acquisition activities	Data extracted from stock exchange reports

Annex 4

**Statistic output relative to the second regression,
implying profitability as dependent variable**

	Coefficient	R-squared/Adjusted R-squared
Interest coverage ratio	0.452** (2.893) 0.001	
Gross margin	0.216* (8.553) 0.014	
Debt ratio	0.387*** (2.695) 4.384	
Return on assets	0.416** (2.084) (0.986)	
Current liquidity	0.561(1.297) 0.0001	
Size	0.731(1.509) 0.018	
Tangible assets	0.892(5.074) 1.524	
Z score	0.618** (5.512) 0.324	
Blockholders	0.156** (-3.139) 0.006	
Acquisition activities	0.134	0.673/0.562

Source: own calculations.

*= Significant at 0% **= Significant at 5% ***= Significant at 10%
-T statistic in brackets and standard errors below

Annex 5

Descriptive Statistics corresponding to the leverage ratios relative to companies which adopt an aggressive leverage in comparison with companies which adopt a low leverage

	DTNWREL	LEVMULTREL	DTNWAGRE	LEVMULTAGRE
Mean	4.820922	5.586039	22.6	8.919091
Median	3.21	4.16	17.48	9.32
Maximum	45.58	43.21	122.69	17.18
Minimum	-7.24	-6.24	0.49	1.38
Std. Dev.	8.41073	7.56561	26.20977	4.193002
Skewness	3.977484	3.844596	2.777634	0.084551
Kurtosis	19.33426	18.88299	10.93391	3.070775
Jarque-Bera	701.4401	661.7099	85.99053	0.030804
Probability	0	0	0	0.984716
Sum	245.867	284.888	497.2	196.22
Sum Sq. Dev.	3537.019	2861.923	14426	369.2066

Source: own calculs.

DTNWREL = Debt to Tangible Net Worth corresponding to companies which adopt a low leverage

LEVMULTREL = Leverage Multiplier corresponding to companies which adopt a low leverage

DTNWAGRE= Debt to Tangible Net Worth corresponding to companies which adopt an aggressive leverage

LEVMULTAGRE = Leverage Multiplier corresponding to companies which adopt an aggressive leverage.s