

UNDERSTANDING THE DETERMINANTS OF FIRMS' PERFORMANCE

Case
study

Keywords

Firm performance organisational performance
Product performance
Economic value added
Balanced scorecards

JEL Classification

M00, M12, M51

Abstract

After initially depicted the multidimensionality of organizational performance, I used a pooled dataset of 1204 observations across the years 2005, 2006 and 2007. The observations included in the analysis have all non-missing data. An initial selection from a much larger dataset has been conducted in order to eliminate observations with missing data. Our results show that time effect in itself is not enough to impact significantly on organizational performance. Yet we have found evidence for structural changes in Romanian Economy affecting organizational performance. We have also documented that the effect of financial leverage on organizational performance is limited to certain industries. The model is valid in spite that the model does not account for (full) multidimensionality of organizational performance.

The multidimensionality of organizational performance

According to Richard et al (2009) we have to differentiate between organizational performance and organizational effectiveness. The first concept captures organizational outcomes in three areas: (a) financial performance, (b) product performance and (c) shareholders' return.

Given the multidimensionality issue of the organizational performance (Richard et al 2009), it is very difficult to choose how to quantify the organizational performance. First of all, a review of existing empirical studies reveals that there are three possible strategies employed in quantifying organizational performance. First group of studies choose to use one measure of organizational performance as dependent variable. The second strategy involves a static comparison between multiple models, each one having a different dependent variable as proxy for organizational performance. Naturally, the third possibility is to construct aggregated measures of organizational performance.

Regardless of the employed strategy, measures of organizational performance target (a) shareholders return, (b) product and market outcomes and (c) financial outcomes. Naturally most employed measures of organizational performance are accounting and financial indicators and ratios. Accounting measures are appropriate for measuring organizational performance as empirical studies reveal a high correlation between accounting and economic performance (Danielson and Press, 2003). As implied above, organizational performance is best revealed by economic performance and not by accounting performance. In addition, literature on organizational performance is unanimous in recognizing the biases introduced using accounting measures of performance by different accounting practices and standards. In addition, accounting measures of firms'

performance are limited by the fact that they reflect past performance and consequently using them for forecasting future performance is limited. Financial measures of performance, in particular shareholders return, are recognized as most appropriate measures of firms' performance. That is because such measures better incorporate intangible assets that in the case of accounting measures. Yet once again using financial indicators of performance has strong limitations. Relying on the assumption that shareholders are the sole beneficiary of firms' rents reduces the dimensionality of firms' performance. Then, as financial literature points out, market valuation does not reflect present performance but expectations about future performance. In other words changes in market prices are determined not by fundamentals but by information. Under market efficiency hypothesis we have a random walk phenomenon. We cannot use past information to predict future performance. Momentum (Chan, Megadeath, Lakonishok, 1996), and herding behavior (Graham, 1999; Grinblatt, Titman, & Wermers, 1995) also contributes to the weak relationship between economic fundamentals and future organizational performance. A final limitation of financial indicators of firms performance is that they evaluate performance at organizational as a whole, making impossible to disaggregate performance at product or strategic business units level (Richard et al, 2009) due to synergies / cannibalization phenomena associated with interactions among units (Bulow, Geanakoplos, Klemperer, 1985; Devinney and Stewart, 1988).

Mixt indicators (financial and accounting) are a third class of indicators used in measuring organizational performance. There is extensive literature on Economic Value Added (EVA). The key advantage of EVA is that this method accounts for the cost of capital, providing a better balance between risks and returns as

a proxy for performance. Increasingly popular measures of organizational performance are provided by Balanced scorecards methodology. Balanced Scorecards are targeting four domains of performance: (a) finance, (b) marketing, (c) operations and (d) innovation and leadership. Richards et al (2009) considers BS indicators as mixed (financial and accounting) indicators. Yet they also underline that by targeting operations and innovations issues, BS “are broadening the theoretical and normative aspects of firms’ performance” (Richard et al, “Organizational Performance”, *Journal of Management*, p. 736, June 2009) which is in fact a blurring of the distinction between organizational performance and effectiveness. Most important BS is mapping not only financial performance and shareholders’ outcomes but also marketing performance covering (product and market performance) and innovation. Doing so, BS’s enrich the dimensionality of firms’ performance.

Determinants of organizational performance

A plethora of studies in economics, finance and management are dwelling on the determinants of organizational performance. In economics the majority of studies on this issue concentrate on the impact of ownership on firm performance. The problem of ownership is relevant especially in the context of ex-communist countries. After falling of communist regimes in 1990 they have undergone a massive privatization process resulting in a new private and institutional ownership structure replacing the old state-administrated system with its low efficiency pressure and distorted market and price signals. While economic literature supplies plenty of reasons for the superiority of market structures vis-à-vis state controlled economic structures, the mass privatization schemes implemented in eastern Europe provided an excellent

framework for a natural experiment resulting in empirical evidence supporting the superiority of privatized firms over state controlled ones. In particular Telegdy, Earle and Brown (2006) support the idea of a different importance associates with different types of owners. In an extensive long times series analysis on a cross section of enterprises from 4 countries (Hungary, Romania, Ukraine and Russia), authors have documented the positive impact of privatization on firm’s performance. However, important differences accrue across countries. While foreign investors do have in all cases a positive impact, the other types of investors do not have in all cases, as one could expect, a positive impact on firms’ performance. Relevant to our analysis is that privatization to insiders in Russia is associated with a decreased in productivity which extends for a period of 5 years after the privatization (Telegdy, Earle and Brown, 2006). In a relatively recent study using a Romanian dataset, Constangioara (2009) shows that while private domestic ownership fails to contribute to the firms’ performance, foreign ownership brought its contribution to the required restructuring of the Romanian economy in ’90 and makes a statistically significant positive contribution to the firms’ performance later on.

Secondly, many studies both in economics and business support the idea that firm performance at industry level does have to account for the role played by SMEs. Constangioara (2009) has documented that both employment flows and empirical evidence supports the theoretical literature which considers small firms as better equipped to market conditions compared to the others. Financial studies on the issues of the determinants of organizational performance focus on the impact of financial and leverage. Financial leverage is defined as the ratio of total debt to total book value of assets. Evidence on the impact of financial leverage on

organizational performance is mixed. Ebaid (2009) has found that capital structure has only a marginal influence on the organizational performance in Egypt. Similarly, Sanjay (2009) found no significant relationship between financial leverage and firms' performance in cement industry in India. To the opposite, Zeitun and Tian (2007) find out that firm's capital structure have a significant and negative impact on the firm's performance.

In what follows this paper uses a Romanian dataset of firms to investigate the impact of financial leverage on firms' performance.

Data and methodology

We use a pooled dataset of 1204 observations across the years 2005, 2006 and 2007. The observations included in the analysis have all non-missing data. An initial selection from a much larger dataset has been conducted in order to eliminate observations with missing data. Variables included in the dataset are:

- Sales
- Growth of sales over the period
- Operating Margin
- Financial Leverage
- Current Ratio
- Debt Service ratio (DSR)
- Industry

As explained there is ample financial literature dedicated to the impact of capital structure on the organizational performance. Most part of it focuses on the issue of the relationship between financial leverage and organizational performance. Empirical evidence is mixt, as mentioned. The other financial ratios included in the analysis are also considered as having an impact on organizational performance. Current ratio is a widespread ratio measuring a firm's ability to meet creditor's demands. Whereas its value varies across industries, low values might indicate difficulties the firm has in meting obligations towards, and then this could be indication of poor working capital

management. Whatever the situation, it is intuitive that current ratio has an impact on organizational performance. The DSR (Debt Service Ratio) quantifies the cash available for debt servicing. This ratio serves in credit applications screening. The higher this ratio is, the easiest it is to get a loan. The last financial ratio is Operating margin (OM). This is a popular measure of firms' performance (Richard et al 2009). In addition this analysis controls for sales and industry. I have considered that sales are a good proxy for the size of the firm. As explained earlier, size is likely to affect the organizational performance. In its turn industry is well knows as determining the firms performance, as Porter's model of competitiveness adequately stipulates.

So the main objective of the analysis is to identify the determinants of organizational performance. Although multiple variables are employed in the analysis, only three hypotheses are considered:

- H₀₁: financial leverage is irrelevant
- H₀₂: industry is irrelevant
- H₀₃: size is irrelevant

Table 1 presents a summary of data statistics.

Table 1 shows that all industries are fairly presented in the database. Most observations are in manufacturing sector (1755) followed by Commerce (660) whereas in Agriculture we have only 191 observations. Note however that in fact the reported figures are for the pooled sample. Note that I have used categorical variables for all controls except Industry and Sales.

As explained earlier the target variable is OM (operating margin). For selection of variables I have employed SAS software. Selection has been performed with PROC DMINE. Selection has used the contribution to R-Square to the model (a stepwise R-Square improvement less than 0.0005 is the rejection criterion). Main results are presented in table 2.

Selection has been based on the contribution of each variable to a linear

model having OM as dependent variables and the others as controls. The R - square for controls is presented in table 3:

Results are informative. We see for example that YEAR is not significant. Thereby we see that time effect in itself is not enough to impact significantly on organizational performance. Financial leverage is not significant in itself – so our data does not allow us to reject the first hypothesis of our study. Sales are also insignificant. This is in opposition to base business logic as depicted in Porter's model. We see that some group variables have been produced in the analysis. First of all the initial input variable (Industry, 12classes) has been rejected and replaced with a group variable having four classes. Although initial input FANANCIAL LEVERAGE (4 classes) is rejected, a group variable G_LEV with three classes is found significant. Other controls have also been created.

We see in table 3 that interactions of YEAR with INDUSTRY and LEV contribute highly to our model. A significant interaction between YEAR and INDUSTRY suggests a structural change in the dataset. Thereby although time does not affect in itself organizational performance, there has been a structural change in the Romanian Economy over the considered period which has impacted the performance of the firms. Similarly the interaction between industry and financial level is also significant, which proves that the impact of financial leverage on organizational performance is restricted to certain industries. Table 3 provides R-Square values for main effects.

Table 4 shows that all effects chosen in the model are highly significant ($p=000$).

Table 5 shows that the model is valid, is spite of the fact that we cannot control for many aspects specified before in the theory on the multidimensionality of organizational performance.

Conclusions

After initially depicted the multidimensionality of organizational performance, I use a pooled dataset of 1204 observations across the years 2005, 2006 and 2007. The observations included in the analysis have all non-missing data. An initial selection from a much larger dataset has been conducted in order to eliminate observations with missing data. Our results show that time effect in itself is not enough to impact significantly on organizational performance. Sales are also insignificant. Some group variables have been produced in the analysis. First of all the initial input variable (Industry, 12classes) has been rejected and replaced with a group variable having four classes. Although initial input FANANCIAL LEVERAGE (4 classes) is rejected, a group variable G_LEV with three classes is found significant. Other controls have also been created. Interactions of YEAR with INDUSTRY and LEV contribute highly to our model. A significant interaction between YEAR and INDUSTRY suggests a structural change in the dataset. Thereby although time does not affect in itself organizational performance, there has been a structural change in the Romanian Economy over the considered period which has impacted the performance of the firms. Similarly the interaction between industry and financial level is also significant, which proves that the impact of financial leverage on organizational performance is restricted to certain industries. Table 3 provides R-Square values for main effects. All effects chosen in the model are highly significant ($p=000$). The model is valid, is spite of the fact that we cannot control for many aspects specified before in the theory on the multidimensionality of organizational performance.

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TABLES

Table 1 Summary of data statistics

Industry	r. bs.	Var.	Mean	Std. Dev.	Industry	r. bs.	Variable	Mean	Std. Dev.
Agriculture	6	Sales	2937817.57	58465.2	Extractions	7	Sales	14323275	538688
		OM	2.66	0.80			OM	2.82	1.06
		LEV	1.37	0.78			LEV	1.10	0.50
		CR	2.04	1.07			CR	2.11	1.40
Commerce	60	Sales	57378498.36	1259902	Hotels	6	Sales	1446097	324506
		OM	2.75	0.86			OM	2.38	1.02
		LEV	1.87	1.19			LEV	1.00	0
		CR	1.68	0.91			CR	2.22	0.33
Constructions	13	Sales	1763536.59	2042699	Housing	4	Sales	7742162	75465
		OM	2.36	0.81			OM	1.08	0.28
		LEV	1.30	0.81			LEV	1.33	0.86
		CR	1.14	0.50			CR	3.08	1.17
Energy	71	Sales	13817772	256548	Manufacturing	755	Sales	35154158	1189154
		OM	3.24	0.85			OM	2.46	0.98
		LEV	1.47	1.04			LEV	1.30	0.76
		CR	2.11	1.17			CR	1.77	1.08

Table 2 Results of DMINE procedure

Name	Role	Rejection reason
Industry	Rejected	Group variable G_INDUSTRY preferred
Sales	Rejected	Low R ²
CR	Input	
DSR	Input	
Year	Rejected	Low R ²
LEV	Rejected	Group variable G_LEV preferred
G_INDUSTRY	Input	
G_LEV	Input	

Table 3 R-Square for controls

EFFECT	R-SQUARE
INDUSTRY	0.076
Group INDUSTRY	0.074
CR	0.073
LEV	0.016
Group LEV	0.002
SALES	0.002
YEAR	0.002
Group YEAR	0.001
INDUSTRY*LEV	0.105
INDUSTRY*YEAR	0.084

Table 4 Statistical significance of selected controls

EFFECT	DF	R-SQUARE
Group INDUSTRY	5	<.0001
CR	1	<.0001
Group LEV	2	<.0001
DSR	1	<.0001

Table 5 Final ANOVA table for Target OM

Effect	DF	R-Square	Sum of squares
Model	9	0.164	578.15
Error	3602	.	2928.31
Total	3611	.	3506.46