

## **Firm Management Competence: Does It Matter?**

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### **Abstract**

This study explores the influence of financial leverage and of management competence on firm performance using a sample of 102 listed firms in the Athens Stock Exchange. It is found that leverage contributes significantly to sales growth, stock returns, and profitability due to management competence.

*Key words:* management competence; leverage; Athens Stock Exchange

*JEL classification:* C33; L25; M12; M21

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### **1. Introduction**

Why do some firms thrive while others fail? In the pioneering work of Penrose (1959), a firm may achieve rents not because it has better resources but rather because it makes better use of its resources. According to Enders (2004), firm differences are the outcome of superior management. A firm's management team is responsible for the most important decisions of corporate performance.

Financing decisions have a great influence on firm performance. According to modern finance theory, borrowing promotes the allocation of resources, improves managerial incentives, and force firms to invest optimally (e.g., Jensen, 1986; Wruck, 1990). This view has clearly dominated contemporary thinking and practice. It is assumed that firms issue debt to finance investments that are needed to set up an operation. Issuing debt increases the financial obligations of the firm and hence increases the probability of bankruptcy when demand is uncertain.

This study attempts to shed light on current business practice in Greece by investigating the influence of borrowing and the role of management competence on

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firm performance. More specifically, it investigates the relationships between economic performance, leverage, and management competence in a sample of 102 firms listed on the Athens Stock Exchange (ASE) for the period 1997–2004. All firms in our sample operate in distressed industries under a homogeneous macroeconomic environment, which may magnify the need for management competence.

We construct an index, which is used as a dependent variable in our econometric model, to capture management competence in a continuously changing environment. We then test the validity of this index in a sample of firms drawn from the ASE. The index validation process consists of two parts. Initially, we establish a relationship between the constructed index and economic performance based on the empirical work of Asgharian (2003). Next, we divide our sample into highly leveraged and less leveraged firms and test our index to investigate the relationship with performance. To the best of our knowledge, this is the first study to investigate the relationship between firm performance, leverage, and management competence by constructing and testing an index based on a sample of firms operating in distressed industries.

The structure of the paper is as follows. The next section discusses previous literature related to the concept and measurement of management competence. Section 3 presents the data, while Section 4 discusses the empirical methodology and the estimation technique. Section 5 presents the empirical analysis and results. We offer concluding remarks in the last section.

## **2. Identifying and Measuring Management Competence**

A never-ending task in the literature has been gauging the importance of capital structure and management practices in firm success. Despite the many success factor studies in this field, it remains unclear what exactly distinguishes successful from less successful companies. Opler and Titman (1994) distinguish between customer-driven, competitor-driven, and manager-driven implications in firm performance. Their study investigates the influence of financial distress on corporate performance. They measure firm performance using three variables: industry-adjusted sales growth, stock returns, and operational income growth. They report that small firms are more vulnerable to financial distress and thus may experience competitor-driven and customer-driven losses in sales. Furthermore, they argue that large firms are more likely to gain more from reducing the activities of underperforming lines in a recession period and hence experience manager-driven implications. This theoretical work motivates us to understand the relationships between management competence, leverage, and economic performance in a sample of large firms working in distressed industries.

The efficient use of firm resources (e.g., leveraged financial resources) depends on the decisions of the management team. According to Amit and Schoemaker (1993), firm performance depends on market imperfections and managerial decisions about resources. A firm may achieve better rents not just because it has access to resources but because the core competencies of a firm better utilize these resources (Penrose, 1959; Enders, 2004). In other words, the quality of management

is an important driver of firm performance. Enders (2004) reported that differences in firm performance result from management quality. He argues that management competence can therefore be used as a means to explain these differences.

The management competence perspective has brought both important practical benefits and significant theoretical extensions to contemporary management thinking. Competence is a multidimensional concept and a number of well documented attempts have been made in the literature to define it (e.g., Boyatzis, 1982; Woodruffe, 1993; Nordhaug and Gronhaug, 1994; Hamel and Prahalad, 1994; Lado and Wilson, 1994; Pavett and Lau, 1983; Westera, 2001; Coyne et al., 1997; Gibb, 2002).

The many suggested characterizations of management competence generally refer to some key constituent elements of competence, such as knowledge, skills, organization, coordination, capabilities, learning, and professional relationships. Taken together, these various characterizations by researchers have often resulted in confusion. According to Chiesa and Manzini (1997), there are three reasons for this confusion: different terminology for similar concepts, reference to inherently different levels of activities within organizations, and a generally adopted static view of competences that does not adequately considers how competences are built or can be changed within an organization. Stoof et al. (2002) argue that it is not important that the definition of competence be ideal; it is important only that the definition is adequate in the context in which it is used. Hence, it may be better to work with broad guidelines rather than a rigid definition (Biemans et al., 2004). From this perspective, we suggest to investigate the relationship between economic performance and management competence viewed as the aggregation of personal and business characteristics, skills, capabilities, and activities required to manage a firm successfully.

Several qualitative and quantitative methods have been used to measure management competence. Boyatzis (1982) created a comprehensive management competency framework that addressed all levels of management. He examined 2000 managers to determine generic competencies that were relevant to performance at various levels of management using the Job Competence Assessment Method. This method enabled managers to generate their own list of characteristics perceived to lead to effective performance at their managerial level. Ghiselli (1963) determined specific psychological traits considered important to managerial performance. Fayol (1949) considered the tasks and functions of managers and argued there are common principles that could be applied not only across organizations but also to various levels within organizations. This systematic framework identified planning, organizing, commanding, co-coordinating, and controlling as essential elements for effective management. Miner (1973) investigated the extent to which a manager's characteristics are related to managerial success. He focused on differences in the types of motivation required by undergraduate students to successfully pursue a career in management and those of employed people. Katz (1974) investigated management competencies and claimed that managers at all levels require technical, human, and conceptual skills. Mintzberg (1975) studied five chief executives from diverse organizations (a hospital, a consumer goods company, a school, a

technology company, and a consulting firm) to observe behaviors and roles of managers while on the job. Stewart (1991) identified “leading-edge competencies” considered important for effective management. These competencies include long term vision, ability to implement change, having customer and market orientation, willingness to empower, entrepreneurial flair, ability to use teams and think laterally, and ability to demonstrate emotional stability and openness.

Other attempts (Snow and Hrebiniak, 1980; Hambrick, 1983; Hitt and Ireland, 1985) to define and assess distinctive competence used measurement scales to find the relative strength of an organization’s management functional activities. Distinctive competence, being the focus of numerous studies, refers to those things that a management team of an organization does especially well in comparison to its competitors (Selznick, 1957).

Droge et al. (1994) employed item distinctive competency scales to measure management competencies. McGrath et al. (1995) developed a measurement of competencies by evaluating the fit between objectives and results. They measured competence by the degree to which a management team can reliably meet or exceed objectives. Escrig-Tena and Bou-Llusar (2005) analyzed the consequences that these competencies have for a company. They measured competencies by seeking indicators that reflect the intermediate products or consequences derived from them.

Another way for assessing competence is the Critical Incidents Technique (CIT), which was further developed as the well-known Behavior Event Interview (BEI) method by McClelland (1998). The CIT/BEI focuses on the difference between average and excellent performers in a job. Duijm et al. (2004) reported that the CIT/BEI technique attempts to explore what people really do in given circumstances rather than relying on what they say about their motives and skills. Caird (1992) evaluated the CIT/BEI technique for its suitability for identifying enterprise competences, reporting that the technique is time consuming and highlights extremes. The focus of the CIT/BEI is on the excellence of workers, rather than measuring the broad scale of competencies that the management team possesses. Another weakness of this technique is that it only provides information about the top level of competence (Caird, 1992). Respondents also have the tendency to focus on success rather than on failure, which biases the outcomes.

According to Sveiby (2001), a simple and useful measure of competence is the total number of years that professionals in a firm have worked in the profession. He also argues that the level of education of professionals affects the assessment of the quality of their competence and thus the company’s ability to achieve future success. He distinguishes three general classes: primary, secondary, and tertiary. An average can be calculated, and the change in the average shows whether the company improves its average level. Quite a few companies, especially large multinationals, make annual performance assessments of their managers and support staff. Such assessments may form the foundation of a competence index given by educational level  $\times$  performance. Another simple competence index, entirely based on demographics, can be calculated as years in the profession  $\times$  seniority  $\times$  educational level. This definition is related to Smet (1992), who pointed out that people act in a

very different way depending on education, position, practical experience, and age. Another key indicator reported by Sveiby (2001) is the proportion of professionals in the firm. This quotient shows how important are a company's professionals in its ability to generate revenues. He argues that value added per professional is another measure of economic value generated by the firm. It is the professionals by definition who bring in all the revenues. These revenues must then cover all costs incurred in keeping a professional in the company in terms of salary, pension, and so on. What is left over must suffice to finance equipment, depreciation, and training. Large companies use this measure as an efficiency target. This last formula is the basis for this study's management competence index.

### **3. Data**

We use data for firms listed in the ASE during the period 1997–2004. Firms are assigned to an industry group if more than 60% of their annual sales are from activities in that industry. Our initial sample consisted of 150 firms rated above average in terms of a creditworthiness index. This index is directly related to economic performance; it is generally accepted and is cited in the ICAP database. The selected firms all operate in distressed industries. A distressed industry is defined according to the same index of creditworthiness cited in the ICAP database.

The following firms were excluded from the sample:

- Firms belonging to industries with less than four firms listed in the ASE.
- Firms involved in multiple industries.
- Banks, insurance companies, and other financial institutions.
- Investment companies.
- Firms involved in bankruptcy or takeover.

Exclusions were primarily due to specialized financial structures. The resulting sample consisted of 102 firms in 15 industries. The number of these firms per industry is shown in Table 1. We collected data on the management team for each firm from two sources: the ICAP national database and a carefully constructed questionnaire.

To construct our management competence index, information was compiled on the management team in the following areas: (a) average years of experience, (b) shareholding percentage, (c) average educational level, (d) average age, and (e) whether or not innovation was adopted in the last four years as described below.

Each of the 102 firms has management teams that fulfill at least three out of the five conditions described below.

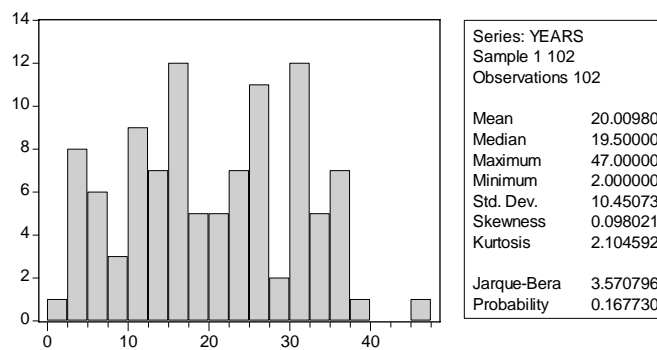
- The average years of experience is at least 20 years.
- The management team holds at least 34% of the company's shares.
- At least 50% of the management team holds a university degree in finance or engineering.
- The average age is 50–60 years old.
- The management team implements innovative practices.

**Table 1. Sample Firms by Industry**

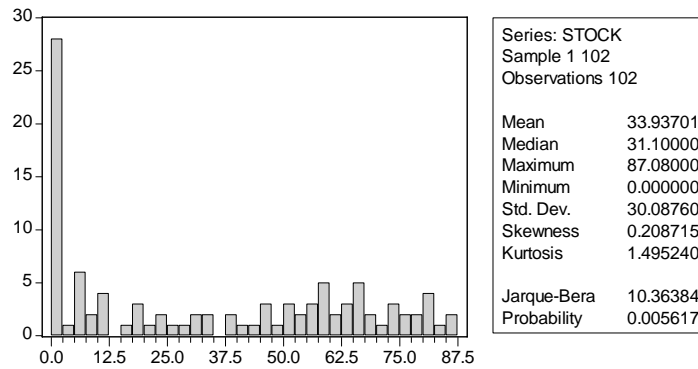
<b>Industry</b>	<b>Number</b>
Basic metals	10
Clothing	2
Computers	7
Construction	13
Elastics & plastics	5
Food and drink	16
Machines-equipment	3
Metallic products	2
Non-metallic ore & cement	5
Printing-publishing	6
Private hospitals	1
Refineries	1
Retailing	6
Transport	3
Wholesaling	22
<b>Total</b>	<b>102</b>

Innovation, according to Schumpeter (1934) and other more recent researchers (Lumpkin and Dess, 1996; West and Farr, 1990), refers to the introduction of a new product or a new technique in production or a new market or a new organization structure in the firm. If any of the above has taken place within the last four years, the management team is an innovator. Innovation is important for the construction of this index since it represents the entrepreneurial spirit and the drive to stimulate growth, development, and performance capabilities. Figures 1 to 5 illustrate distributions of average features of management teams across firms.

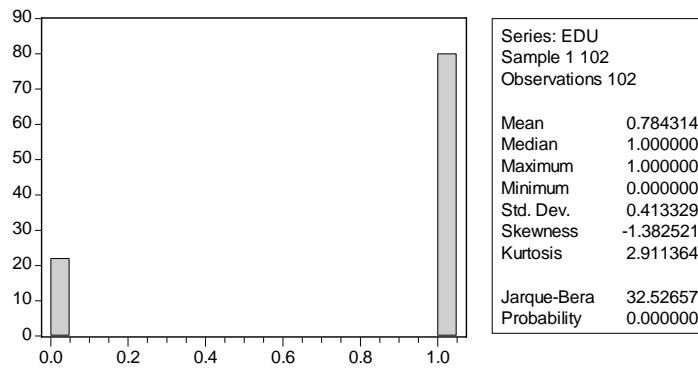
We also asked firms to give us data on the following variables from their published balance sheets: total revenues, profitability, stock returns (as provided by ASE), firm size (measured by total assets), the ratio of net investment to total assets, and leverage (the ratio of debt to equity).

**Figure 1. Average Years of Experience Distribution**

**Figure 2. Stock Ownership Distribution**



**Figure 3. Higher Education Distribution (1 = tertiary and 0 = secondary)**



**Figure 4. Average Age Distribution (1 = 30-50 years, 2 = 50-60 years, 3 = 60 + years)**

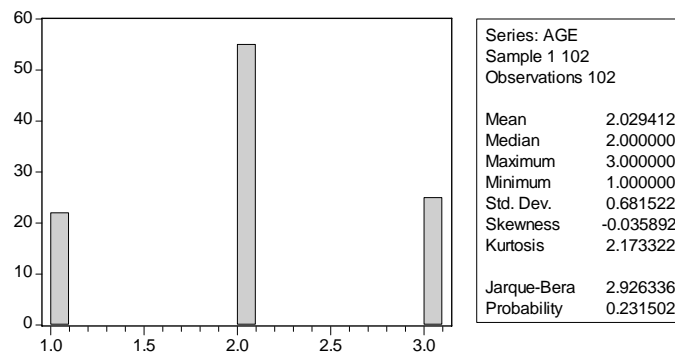
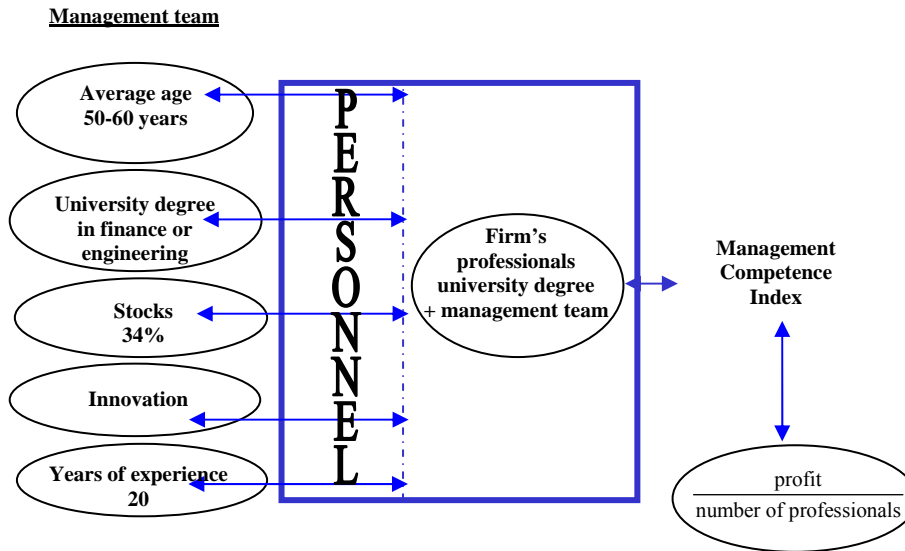


Figure 5. A Schematic Approach for the Construction of Management Competence Index



#### 4. Empirical Methodology and Estimation

According to Sveiby (2001) the term “professional” refers to people who plan, produce, process, or present the products or solutions requested by clients. The term includes everyone directly involved in client work, whether or not they are professionals in the field of competence that constitutes the company’s business idea. In our index, we consider the personnel fulfilling two criteria: (a) they possess a university degree and (b) they are under the direct control or part of the management team contributing to at least three of the five aforementioned conditions (see Figure 5).

Our index, based on Sveiby (2001), is calculated as follows:

$$\text{management competence index} = \frac{\text{profit}}{\text{number of professionals}}$$

Profits are before interest and taxes for each year in the period 1997–2004. The number of professionals is fixed for all years at the 2003 value because there are only small changes in this number over the period. Furthermore, any changes have little impact on the final result of the index.

Most measures of management competence described in the previous section have two major weaknesses. Some are only based on qualitative data and others (e.g., competency scales) cannot be incorporated in econometric models. Our index combines qualitative (e.g., demographics) with quantitative (e.g., profits) measures and can serve as a dependent variable in an econometric model.



Our empirical model, based on Opler and Titman (1994) and Asgharian (2003), is designed to measure the effects of the management competence index and decisions concerning financial leverage on firm performance. The variables that measure firm performance for years for  $t = 1997, \dots, 2004$  are as follows.

- Sales growth (SAL): the percentage change in the firm's total revenue between time  $t$  and  $t-1$ .
- Growth in profitability (PRO): the percentage change in pre-tax profitability between time  $t$  and  $t-1$ .
- Stock returns (STO): the percentage change in a firm's stock prices between time  $t$  and  $t-1$ .

The model consists of three regressions, one for each measure of firm performance. Our main interest is in the coefficients of management competence index and leverage. In addition to the Management Competence Index (DUM), the explanatory variables are as follows.

- Leverage (LEV): the ratio of total debt to the value of equity. This variable reflects the degree to which a business is utilizing borrowed money. Companies that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt if they are unable to find new lenders in the future. On the other hand, leverage can increase shareholders' return on investment and make good use of the tax advantages associated with borrowing.
- Size (SIZ): total assets.
- Investment Ratio (INV): the ratio of net investment to total assets.

The regression model consists of three separate regressions on the same set of explanatory variables:

$$Y_t = \beta_0 + \beta_1 LEV_t + \beta_2 SIZ_t + \beta_3 INV_t + DUM_t + u_t, \quad (1)$$

where  $Y_t$  is the measure of firm performance (STO, SAL, PRO),  $LEV_t$  is leverage,  $SIZ_t$  is firm size,  $INV_t$  is the net investment ratio, and  $DUM_t$  is the management competence index. We use panel data estimation for a number of reasons widely discussed in the literature (e.g., Hsiao, 2003; Klevmarken, 1989) and specifically relevant to our study. These are outlined as follows.

- Panel data analysis controls for heterogeneity and avoids biased results.
- Panel data analysis mitigates collinearity among explanatory variables and is generally more efficient than several alternatives.
- Panel data analysis can identify and measure effects that are not detectable in pure cross-sectional or pure time-series data.

In our case, we chose the fixed effects model as an appropriate specification as we are focusing on a specific set of firms and our inference is restricted to this set of firms. In fact the fixed versus random effects issue has generated a hot debate in the biometrics and statistics literature which has spilled over into the panel data

econometrics literature. The way the issue is resolved is by testing the restrictions implied by the fixed effects model derived by Chamberlain (1984) and check whether a Hausman and Taylor (1981) specification might be a viable alternative.

We proceed as follows. First we test the association of the management competence index and economic performance for the whole sample. Next, we extract from our sample a set of firms with leverage greater or very near to the average leverage and another set of firms with leverage below this average. We then analyze the two sub-samples.

### 5. Empirical Analysis and Results

We run a panel least squares regression with a time series component of eight years to span the sample period. Table 2 reports estimated coefficients with their standard errors.

The effect specifications were cross-section fixed (dummy variables) and period fixed (dummy variables), while for the covariance matrix cross-section weights (PCSE) and period weights (PCSE) are used with no degrees of freedom correction. The lagged value of size is used in all three regressions, the lagged value of the net investment ratio is used in the regression with dependent variable stock returns, and the lagged value of leverage is used in all regressions except the one with sales as the dependent variable. All three dependent variables are expressed in their natural logarithm form, so the final estimation involved unbalanced panel data.

It appears that our variable of interest is significant in all three regressions and has the correct sign. Specifically, we find that a management team that carries all the attributes we specified is positively associated with the company's share return, growth in the profitability of the company, and growth in sales. These results are in line with the arguments of Opler and Titman (1994), who reported that large firms are more likely to experience manager-driven implications and gain from their activities in recession periods.

**Table 2. Panel Regression Results for All 102 Firms**

Dependent variable	Stat.	Int.	LEV	LEV(-1)	INV	INV(-1)	SIZ(-1)	LN(DUM)	R <sup>2</sup>
LN(STO)	Est.	11.64	—	0.20	—	1.90	-0.56	0.18	0.74
	SE	4.70	—	0.12	—	1.02	0.26	0.09	
LN(SAL)	Est.	6.95	0.25	—	1.44	—	-0.46	0.30	0.43
	SE	3.49	0.07	—	0.64	—	0.18	0.07	
LN(PR)	Est.	12.50	—	0.19	0.78	—	-0.74	0.32	0.38
	SE	3.53	—	0.06	0.83	—	0.20	0.11	

Another interesting result is the positive association between firm leverage and economic performance. We argue that it is the result of effective management, i.e., a firm that operates in a distressed industry can improve economic performance by increasing leverage.

Next, we partition our sample into highly leveraged and less leveraged firms. First we examine the 52 firms with above average leverage. We test the following hypotheses based on Asgharian (2003).

- $H_1$ : Highly leveraged firms in distressed industries retain their stock returns and sales growth.
- $H_2$ : Highly leveraged firms in distressed industries retain their growth in profitability.

Again we use panel least squares. The results, shown in Table 3, indicate that competent management might decide to decrease the activity of product lines with low profitability. As we can see from the table, the leverage variable retains its positive association with sales and stock returns. There is insufficient evidence to reject  $H_1$ , i.e., that highly leveraged firms in distressed industries retain their stock returns and sales growth. There is also insufficient evidence to reject  $H_2$ , i.e., highly leveraged firms in distressed industries retain their growth in profitability, since the association between leverage and profitability is positive. Table 3 also shows a positive association between sales, stock returns, profitability, and the management competence index. These associations indicate effective management. This supports the view that firms operating in distressed industries with high leverage maintain strong economic performance due to management competence.

Next, we estimate similar regressions for the sub-sample of 50 firms with low leverage and compare results with those of the highly leveraged firms. We test the following hypothesis based on Asgharian (2003):

- $H_3$ : Highly leveraged firms in distressed industries face lower sales growth and stock returns but retain a steady growth in profitability.

Results are presented in Table 4. The coefficients for annual stock returns and the increase in sales (0.11 and 0.19) of highly leveraged firms are less than the same variables (0.47 and 0.58) of less leveraged firms. Furthermore, the increase in profitability of highly leveraged companies (0.21) is very close to that of all firms (0.19). This shows that the increase in profitability remains constant in the case of highly leveraged firms. In other words, there is insufficient evidence to reject  $H_3$ , supporting findings of Asgharian (2003).

**Table 3. Panel Regressions on Highly Leveraged Firms**

Dependent variable	Stat.	Int.	LEV	LEV(-1)	INV	SIZ(-1)	LN(DUM)	$R^2$
LN(STO)	Est.	8.23	—	0.11	-0.52	-0.27	0.06	0.87
	SE	2.66	—	0.02	0.70	0.13	0.04	
LN(SAL)	Est.	-6.96	0.19	—	2.17	0.34	0.25	0.36
	SE	2.84	0.04	—	0.66	0.17	0.08	
LN(PR)	Est.	9.72	—	0.21	0.65	-0.60	0.34	0.40
	SE	5.37	—	0.06	1.14	0.33	0.16	

Table 4. Panel Regressions on Less Leveraged Firms

Dependent variable	Stat.	Int.	LEV	LEV(-1)	INV	INV(-1)	SIZ(-1)	LN(SIZ)	LN(DUM)	R <sup>2</sup>
LN(STO)	Est.	22.49	—	0.47	-3.08	—	-1.23	—	0.41	0.48
	SE	10.70	—	0.23	1.65	—	0.53	—	0.16	
LN(SAL)	Est.	14.41	0.58	—	1.10	—	-0.80	—	0.17	0.49
	SE	7.05	0.16	—	0.75	—	0.37	—	0.07	
LN(PR)	Est.	15.56	0.41	—	—	2.87	—	-0.93	0.34	0.38
	SE	5.52	0.29	—	—	1.19	—	0.34	0.19	

## 6. Conclusions

This study constructs an index to capture management competence and tests the hypothesis that firms operating in distressed industries with high leverage maintain strong economic performance. The analysis is related to the empirical studies of Opler and Titman (1994) and Asgharian (2003), but the econometric approach allows the data to determine both the functional relationship and the association between leverage, management competence, and economic performance, while taking into account heterogeneity among firms. Summarizing the results, we find that the index for management competence is positively associated, as expected, with the economic performance. Furthermore, highly leveraged firms operating in distressed industries can continue to improve their performance. Our results support the view that this is mainly due to management effectiveness, prevalent in the majority of our sample firms. Therefore, to improve their economic performance, firms should strengthen their management teams.

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