CORPORATE GOVERNANCE AND FIRM PERFORMANCE IN PERIODS OF FINANCIAL DISTRESS

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Abstract

This study investigates the relationship between corporate governance and firm performance employing data from 203 firms listed on the Athens Stock Exchange between 2005 and 2014. This period encompass the sovereign debt crisis erupted in Greece in 2010 and still continues to hit households and businesses alike. The results from the panel regression analysis signify the role of corporate governance in determining the firm performance of the Greek listed firms. In particular, the empirical results reveal a positive impact of board size and composition on corporate performance. Though the role of board size remains unaltered during the crisis period that of outside directors diminishes as the certification provided by auditors seem to replace much of the variation in firm performance. Finally, leverage and liquidity are the two firm-specific factors that their effect was strengthened during the financially-constraint period.

Keywords: Corporate Governance, Firm Performance, Athens Stock Exchange, Panel Data

1. INTRODUCTION

The relationship between corporate governance and firm performance has been widely examined over the last two decades. However, this relationship seems to appeal both academics and practitioners in the wake of corporate scandals around the world (e.g. WorldCom, Enron, Parmalat and Xerox) and the ongoing financial crisis that has inflicted many developed countries. Among the countries that have been severely hit by the crisis is Greece which experiences a long-lasting recession since 2009. During this period, many small and medium-sized enterprises (SMEs) ceased to operate contributing to the rise of unemployment rate in unprecedented levels.

The Greek crisis was basically a sovereign debt crisis which soon turned into a banking crisis. Banks were gradually excluded from the interbank market, saw their deposits to drain and experienced a drastic depreciation in the value of their assets as the sovereign was downgraded by credit rating agencies. The direct consequences of the debt crisis were the decline in GDP by 27% since 2008 and the inability of many households and companies to service their debt obligations. As a result, non-performing loans (NPLs) increased by around seven times, from 5% in 2008 to more than 35% in 2015, with corporate NPLs, increasing from 4.2% in 2008 to 34.3% in 2015

(Asimakopoulos, Avramidis, Malliaropoulos and Travlos, 2016). The dramatic decrease in the domestic demand for products and services led to significant operating losses for the majority of the Greek firms with those listed on the Athens Stock Exchange (ASE) further affected by the diminishing investor interest, the lack of liquidity and bank financing and the rise in the cost of capital.

In the light of these harsh economic conditions the investigation of corporate performance calls for further investigation in order to assess whether firm performance follows business cycles or remains immune to domestic economic conditions. Firm performance is investigated in conjunction with corporate governance structures which are alleged to play significant role in business operation of listed firms. The present study is the first academic attempt that delves into the relationship between corporate governance (board size, independent directors, duality and audit) and firm performance (measured by Tobin's Q, ROA, NPM and EBITDA margin) employing data from the ASE-listed firms for a period that surrounds the debt crisis period (2005-2014).

The majority of research concerning corporate governance and its impact on firm performance has been conducted before the outbreak of the global credit crunch, thus leaving under-researched the crisis period. This study contributes to the

increasing number of studies on the link between firm performance and corporate governance by providing empirical evidence from a market that has been adversely affected by the debt crisis and where corporate governance mechanisms are at a standstill since 2002 when a set of rules governing listed firms were in effect via the first Corporate Governance Law 3016/2002.

The empirical results show that board characteristics such as the number of board members and the proportion of independent directors exert positive effect on corporate performance. However, the role of outside directors and duality in explaining firm performance fades away during the crisis period, while that of auditor is enhanced for the same period implying that the debt crisis altered the drivers of corporate performance from pure board characteristics (i.e. size and composition) to stronger audit certification. On the other hand, the positive effect of firm size on corporate performance is less in the crisis period, while the impact of leverage and liquidity is much stronger for the same period.

Our results have some practical implications for firm managers who seek the best governance schemes that will boost corporate profits under financially-constrained conditions. Moreover, our findings could be useful to policy makers who wish to implement best corporate practices in firms deprived of bank lending and external financing.

The rest of this paper is set out as follows: The second section presents the pertinent literature and an overview of the corporate governance mechanisms prevalent in Greece; the third section describes the dataset and methodology; the fourth section presents the empirical results; and, finally, the fifth section contains the concluding remarks.

2. LITERATURE REVIEW

2.1. Corporate governance factors

Among the corporate governance factors that have been alleged to affect corporate performance is the number of board members, that is, board size. Adams and Ferriera (2007) claimed that the two most important functions for the boards are those of monitoring and advising. Larger boards tend to provide an increased pool of expertise, greater management oversight, and access to wider range of contracts and resources (Psaros, 2009). However, the empirical findings in previous studies are mixed regarding the relationship between board size and firm performance. Some studies (see Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Hermalin and Weisbach, 1998; Bhagat and Black, 2002, Afrifa and Tauringana, 2015) find evidence that small boards are related with better firm performance which is consistent with the agency cost theory. According to this, as board size increases, coordination and communication are hardly achieved, thus decreasing the ability of board members to monitor management behaviour and thereby increasing the agency problem and resulting in lower firm performance. Similarly, large boards reduce the monitor and control function of the board by giving managers space to pursue their own interests rather than those of the principals. On the other hand, some studies (see Dalton, Daily, Ellstrand, and Johnson, 1998; Hillman and Dalziel, 2003; Lehn, Patro and Zhao, 2009) have found that large boards affect firm performance positively, consistent with the view of resource dependence theory, due to improved linkages to the external resources (Marashdeh, 2014). In addition, large boards can also improve and enhance the outcomes of decisions, because of diversity in educations, sharing of ideas, contributions and industry experience, which might lead to high quality advices and thereby better firm performance (Lehn, Patro and Zhao, 2009). Therefore, there is no consensus as to whether large or small boards improve firm performance.

The proportion of outside directors (i.e. independent and non-executive board members) has also been considered by previous studies when examining the determinants of firm performance. Similar to board size, the empirical findings for the effect of proportion of outside directors on firm performance is mixed. Weisbach (1988) showed that firms having board of directors dominated by outsiders perform more effectively than others. Moreover, Resenstein and Wyatt (1990), John and Senbet (1998), Anderson and Reeb (2003), Mura (2006) demonstrated that the proportion of outside directors had a significant positive effect on firm performance. The main argument for the positive relationship between outside directors and firm performance lies on the presence of outside directors to ensure board independence from management by clearly separating the control and management tasks. Additionally, internal managerial disparities can be mediated by outside directors and thus improving the relations between internal management and other stakeholders. Moreover, outside directors may help in reducing information asymmetry between shareholders and executive directors and thus increasing the shareholders wealth (Marashdeh, 2014). In contrast, Agrawal and Knoeber (1996), Weir and Laing (2000) and Bhagat and Bolton (2008) found a negative relationship between the number of outside directors and firm performance.

Several studies have examined whether a two-tier leadership structure, that is, the separation of the CEO from the chairman of the board, affects firm performance. The agency theory supports the notion of separation between the CEO and the chairman, to increase board independence from management, which theoretically results in better performance due to better monitoring and overseeing (Jensen, 1993). In contrast, the stewardship theory argues against separation because it is based on duality (the same person holds the CEO and chairman positions). In duality, effective management is attained when responsibilities and decisions are restricted to one person which results in more effective performance results (Dalton and Kesner, 1987; Donaldson and Davis, 1991). Moreover, Brickley, Coles and Jarrell (1997) claimed that duality helps in reducing the incomplete communication between the CEO and the chairman, thus reducing inconsistencies and conflicts in decision making (Marashdeh, 2014).

However, Vafeas and Theodorou (1998) and Weir and Laing (2000) claimed that there is no systematic link between duality and organizational performance or market value.

The impact of auditors on firm performance has received little attention. Wild (1994) asserted that the market reaction was more favourable towards earnings reports after an audit committee had been established. In contrast, Klein (1998) found no evidence that auditing had an impact on a range of market performance and accounting measures. In the current study we investigate whether companies being audited by Big 4 audit firms (i.e. KPMG, Ernst & Young, Deloitte and PWC) positively affect firm performance. It is widely accepted that Big 4 auditing companies provide higher audit quality than their non-Big 4 counterparts (De Franco, Gavious, Jin and Richardson, 2011). Moreover, Big 4 auditors reduce the cost of debt capital (Mansi, Maxwell and Miller, 2004; Pittman and Fortin 2004, Dasilas and Papasyriopoulos, 2015) and thus enhancing financial results. Therefore, a positive relationship is expected between firms audited by Big 4s and their financial performance.

2.2. Firm-specific factors

Apart from the aforementioned corporate governance variables, the current study considers firm-specific variables that explain corporate performance. A strand of studies (e.g. Morck, Shleifer and Vishny, 1988; Yermack, 1996; Gompers, Ishii and Metrick, 2003; Black, Jang and Kim, 2006; Chenhall and Moers, 2007, Afrifa and Tauringana, 2015) used different firm-specific (control) variables. Based on the pertinent literature, we use firm size, leverage, liquidity and age as control variables.

The effect of firm size on firm performance is ambiguous as documented by various studies (e.g., Agrawal and Knoeber, 1996; Himmelberg, Hubbard and Palia, 1999; Nenova, 2003; Durnev and Kim, 2005). In particular, Short and Keasey (1999) and Joh (2003) argued that, compared to small firms, large firms are more likely to generate funds internally and access external resources. In addition, larger firms might benefit from economies of scale by creating entry barriers with a positive effect on firm performance. In line with these explanations, Serrasqueiro and Nunes (2008) and Black, Jang and Kim (2006) found that firm size positively affects firm performance. Contrarily, Garen (1994), Agrawal and Knoeber (1996) and Nenova (2003), among others, argued that large firms are subject to more inspections and scrutiny. Thus, it might be costly for the controlling families to extract private profits (Nenova, 2003). Therefore, firm size negatively impacts firm performance. The rationale is that larger firms might not be as efficient as the smaller ones due to reduced control by management over strategic and operational activities as firm size increases. In line with previous studies (e.g., Muth and Donaldson, 1998; Elsayed, 2007; Lehn, Patro, and Zhao, 2009; Marashdeh, 2014) who used total assets as a proxy for firm size, we proxy firm size by using the natural logarithm of total assets. However, we cannot formulate a clear indication regarding the relationship between firm size and financial performance.

Various researchers have argued that leverage may affect firm performance either positively or negatively. According to Jensen and Meckling (1976) leverage mitigates agency problems as an internal corporate governance mechanism especially free cash problems. Jensen (1986) argued that increasing the external debt may result in positive effect on firm performance. In fact, high levels of debt discipline firm managers to use the company free cash flows for non-profitable investments since managers are obliged to pay periodic payments of interest and principal. Moreover, Agrawal and Knoeber (1996) contended that firm performance can be improved by using the debt in financing the company as a consequence for monitoring by lenders. On the other hand, Myers (1977) asserted that high amounts of debt may affect firm performance negatively due to the problem of underinvestment. This is because increasing leverage decreases company's debt capacity which may result in losing investment opportunities. Furthermore, Myers (1977) and Stulz (1988) argued that high levels of leverage are associated with higher financial risk that may affect firm's market value. Andrade and Kaplan (1998) claimed that the lower the firm leverage the lower the probability of financial distress and firms with higher financial leverage tend to perform worse than firms with lower financial leverage. Therefore, the effect of leverage on firm performance is ambiguous. We estimate leverage as the book value of debt to the book value of assets at the end of the financial year.

Liquidity is another important determinant of firm performance since it is an indicator of the company's market position and achievements. Fang, Noe and Tice (2009) argued that liquidity reduces managerial opportunism and stimulates trade by informed investors, thus improving investment decisions through more informative stock prices. Therefore, a positive relationship between liquidity and firm performance is anticipated. In line with previous studies (Chamberlain and Gordon, 1989; Jose, Lancaster and Stevens, 1996; Fang, Noe and Tice, 2009), we measure liquidity employing the current ratio which is defined as current assets over current liabilities. Based on prior findings, a positive effect of liquidity on firm performance is expected.

Firm age has been used by a number of studies (Gregory, Rutherford, Oswald and Gardiner, 2005; Boone, Karpo and Raheja, 2007; Borghesi, Houston and Naranjo, 2007; Afrifa and Tauringana, 2015) as an important factor affecting firm performance. So far, empirical evidence is contradictory. On the one hand, there is a positive relationship between firm age and performance. Evans (1987) argued that older firms are more experienced, have a better established reputation and, therefore, may have relatively lower costs of capital, which may contribute to improving performance. Moreover, Lipczynski and Wilson (2001) reported that new firms are less likely to earn more profit than older ones because they are less experienced in the market and because they are trying to establish their own presence. On the other hand, there is evidence of a negative correlation between firm age and

performance. The rationale behind this relationship has to do with the fact that older firms are reaching the end of their life cycle. Black, Jang and Kim (2006) suggested that older firms are more likely to have finished their high-growth stage, while younger firms are faster growing. Accordingly, younger corporations are more likely to have better growth opportunities. Following previous studies (Gregory, Rutherford, Oswald and Gardiner, 2005; Boone, Karpo and Raheja, 2007; Borghesi, Houston and Naranjo, 2007; Hermes and Katsigianni, 2011; Afrifa and Tauringana, 2015), we estimate firm age as the natural logarithm of the number of the years the company operates.

2.3. The Corporate Governance in Greece

The Athens Stock Exchange (ASE) consists of listed companies that have low shareholding dispersion and are usually owned and run by the founder and/or its family members. This characteristic ownership and management structure of the ASE-listed firms has been alleged to minimize any agency problems between owners and management. However, Greece's accession into Eurozone and the adoption of the EU single currency highlighted the prospects of the listed companies and attracted the interest of many domestic and foreign individual and institutional investors. This investor's interest took the form of a stock price rally at the end of 1990's with the increase of IPOs and SEOs which, in turn, diluted company shareholdings and casted doubt on the traditional ownership-management style of the typical Greek listed firm. These were the first signs that the long lasting management methods had to be reconsidered. Moreover, the influx of billions of euros in successive equity issuances and the opportunistic behaviour of some firm managers to take advantage of the frenzy investing interest led the Hellenic Capital Market Commission (HCMC) to take an active role, introducing rules, regulations and codes of conduct. All these measures were aiming at the protection of investors against market abuse, the improvement of the transparency of the market and the establishment of appropriate business ethics (Xanthakis, Tsipouri, and Spanos, 2006). Consequently, the discussion on corporate governance in Greece was at the top of the policy agenda for listed firms and market authorities alike.

Though corporate governance was initially discussed in the mid-1990s through an introductory paper published by the Athens Stock Exchange, the first major step towards the formation of a comprehensive framework on corporate governance has been the publication of the "Principles of Corporate Governance in Greece" in October 1999 by an ad hoc committee coordinated by the HCMC (Xanthakis, Tsipouri, and Spanos, 2006). However, the decisive step for the introduction of a set of rules governing ASE-listed firms was the Corporate Governance Law 3016/2002 published in May of 2002. The Corporate Governance Law 3016/2002 clearly posits the best corporate practices that listed firms should adopt regarding the board size, the proportion of outside directors, the internal organizational structure, the audit committees and the participation of shareholders in the decision-making process (Dimitropoulos and Asteriou, 2010). According to the Corporate Governance Law 3016/2002, there are no bounds regarding the maximum number of board members, however, it states that the minimum number of board members should be three. Consistent with the best corporate practices, the composition of the board should guarantee the balance of both executive and non-executive members in the decision-making process. To this point, the Corporate Governance Law 3016/2002 requires non-executives account for more than 1/3 of the total number of board members. At least two of the non-executive board members should be independent. According to the Corporate Governance Law 3016/2002, executive directors are those that are involved into the day-to-day business and are compensated for their services. The rest of board members are considered non-executives. Regarding the leadership structure (duality or separation of the CEO from the chairman) is at the discretion of the board. Finally, the Corporate Governance Law 3016/2002 requires all listed firms to have an internal audit scheme which guarantees the credibility of financial information disclosed by firms.

3. RESEARCH DESIGN

3.1. Sample

The focus of the current study is the relationship between corporate governance and firm performance. To test the above relationship, we employ data from 203 firms listed on the Athens Stock Exchange (ASE) for the period 2005-2014. Due to different capital structure and regulatory requirements on financial statements, banks and utilities were excluded from the final sample. We also excluded firms for which the financial year was different from the calendar year. To investigate whether the Greek debt crisis has altered the effect of corporate governance on firm performance, we partition our sample into two subsamples, where the first one refers to the pre-debt crisis period (2005-2009) and the second one to the debt crisis period (2010-2014). Data for corporate governance were culled manually by scrutinizing the annual reports of 203 companies listed on the ASE. Data for firm performance were extracted from Bloomberg.

The distribution of the sample firms by SIC code is presented in Table 1. The majority of firms belong to manufacturing sector (36%) followed by the wholesale and retail sector (16%) and the financial sector, excluding banks (16%). Moreover, a significant part of sample firms operates in services (14%). Finally, a small fraction of sample firms are from mining and construction industry (7%) and agriculture, forestry and fishing (3%).

Table 1. Sample distribution by industry

SIC code range	Industry	N	%
0100-0999	Agriculture, Forestry and Fishing	7	3%
1000-1499	Mining and construction	14	7%
2000-3999	Manufacturing	73	36%
4000-4999	Transportation, Communications, Electric, Gas and Sanitary service	15	7%
5000-5999	Wholesale and retail trade	33	16%
6000-6799	Finance, Insurance and Real Estate	32	16%
7000-8999	Services	29	14%
Total		203	100%

3.2. Variables

To measure the effect of corporate governance on firm performance, we gather data for board size (number of board members), outside directors (independent and non-executive directors as percentage of board size), duality, that is whether the same person holds the position of the CEO and the chairman of the board and auditor which is a dichotomous variable displaying whether sample firms are audited by Big 4 audit firms (i.e. KPMG, Ernst & Young, Deloitte and PWC). Finally, we control for the number of years of firm operation (age), leverage, liquidity and firm size.

Regarding the variables that assess firm performance, so far empirical studies have employed a range of market-based and accounting-based measures such as Tobin's Q (Hermalin and Weisbach 1991; Demirguc-Kunt 1992; Yermack, 1996; Weir, Laing and McKnight, 2002; Kiel and Nicholson, 2003; Mura, 2006; Abdullah, 2007, Coles, Daniel and Naveen, 2008; Guest, 2009; Afrifa and Tauringana, 2015), ROA (Yermack, 1996; Zajac and Westphal, 1996; Kiel and Nicholson, 2003, Guest, 2009; Afrifa and Tauringana, 2015), ROE (Adjaoud, Zeghal and Andaleeb, 2007), ROI (Boyd, 1995; Adjaoud, Zeghal and Andaleeb, 2007) and net profit margin (Bauer, Guenster, and Otten, 2004). According to Daily and Dalton (1993), the accounting-based measures assess the current financial performance of the company, while market-based measures consider the investor perceptions of the company potential performance. Haniffa and Hudaib (2006) argued that there is no unanimity in literature on which measure better captures financial performance. In addition, they report that every measure has its pros and cons and thus, there is no specific measure to be the best proxy for financial performance. In the current study, we employ four measures of financial performance which are Tobin's Q, ROA, net profit margin and EBITDA margin.

Following Booth and Deli (1996) we calculate Tobin's Q ratios as the market value of equity divided by the book value of assets. Haniffa and Hudaib (2006) argue that Tobin's Q ratio measure the effectiveness with which firm management is capable to use its assets to create value for the shareholders. ROA is defined as the earnings before interest and taxes scaled by total assets. According to Demsetz and Lehn (1985), ROA is representative of underlying business parameters in terms of year-to-year fluctuations than stock market rates of return, because the latter are more reflective of expected future developments rather than actual business conditions. Hermalin and Weisbach (1991),

Gompers, Ishii and Metrick (2003), Klapper and Love (2004), Dahya and McConnell (2005) Afrifa and Tauringana (2015) are among the researchers that used ROA as an indicator of financial performance. Following Bauer, Guenster, and Otten (2004), we also utilize net profit margin as well as EBITDA margin to gauge financial performance.

Table 2 presents descriptive statistics for the sample firms for the whole period under examination as well as for the pre- and debt crisis periods. The mean (median) total assets is 295,653,780 (71,326,470) euros, while that of shareholders' funds is 132,157,390 (28,575,210) euros. Looking at leverage and firm value, the mean (median) long-term debt is 74,090,260 (8,711,270) euros and that of short-term debt is 80,298,180 (19,264,280) euros. The average (median) gearing is 100.13% (64.25%). The mean (median) enterprise value at the end of the fiscal year is 297,194,560 (49,961,960) euros while the market capitalization has an average of 196,130,926 euros. Turning to the performance measures, we see a mean (median) ROE of -7% (0.99%), ROA of -1.22% (0.29%) and a net profit margin of 1.97% (2.55%). P/E ratio has a mean value of 32.24, while P/BV ratio has a mean value of 1.51. Finally, on average sample firms have 461 employees.

Panels B and C report the descriptive statistics for the two sub-samples in the pre-debt crisis period and in the debt crisis period. At first glance, it is obvious that ROA, ROE and net profit margin deteriorated dramatically during the debt crisis period reflecting the harsh economic conditions of the Greek market and the repercussions of the ongoing debt crisis on the financial performance of Greek companies.

Table 3 displays the correlations between all variables employed. We observe that Tobin's Q is positively related with size and the three corporate governance variables (i.e. board size, independent directors and duality). These univariate results show that as the size of firm increases, firm performance as measured by Tobin's Q enhances. Moreover, the board size and the number of independent directors positively affect firm performance. Finally, duality seems the ideal leadership structure to improve firm performance. On the other hand, leverage and age exert negative effect on Tobin's Q. These results imply that as debt levels increase, firm performance decreases in the sense that more money in the form of interest payments and principal are needed to service debt obligations, thus squeezing profitability. Note that all correlations between dependent and independent variables are relatively low, showing that multicollinearity is not a problem in our analysis.

Table 2. Descriptive statistics

	Mean	Median	St. Deviation	Max	Min
Panel A: Full sample					
Total assets (in 000' Euros)	295,653.78	71,326.47	1,205,214.44	16,171,222.00	857.45
Shareholders' funds (in 000' Euros)	132,157.39	28,575.21	485,153.85	6,746,334.00	-430,716.00
Long term debt (in 000' Euros)	74,090.26	8,711.27	442,987.60	7,559,734.00	0.00
Current liabilities (in 000' Euros)	80,298.18	19,264.28	289,725.56	3,766,589.00	25.49
Working capital (in 000' Euros)	29,595.18	9,593.18	122,742.64	1,851,839.00	-1,677,007.00
Enterprise value (in 000' Euros)	297,194.56	49,961.96	1,126,340.30	16,068,301.00	-4,969.59
ROE %	-7.00	0.99	53.57	154.84	-791.69
ROA %	-1.22	0.29	11.67	74.32	-99.94
Profit margin %	1.97	2.55	23.89	100.00	-98.68
Gross Margin %	32.35	26.60	26.33	100.00	-84.78
EBITDA Margin %	9.47	9.16	23.24	96.05	-99.47
EBIT Margin %	3.95	5.10	23.65	100.00	-99.81
Market capitalisation (in mil Euros)	196.13	21.07	778.74	12,351.79	1.00
Earnings per share	-0.27	0.01	5.05	23.16	-177.19
Cash flow per share	0.07	0.12	4.66	24.72	-166.64
Book Value per share	4.16	2.11	13.00	207.86	-54.90
Price / earnings ratio	32.24	12.84	76.43	925.11	0.00
Price / book value ratio	1.51	0.63	14.40	587.13	-8.74
Market capitalisation/ Total assets (Tobin's Q)	0.45	0.25	0.67	9.73	0.00
Number of employees	461	120	2,044	34,000	1
Number of board members	8	7	2	17	4
% of outside directors	55.26	55.56	15.75	92.31	7.47
Number of years of operation	36	31	23	135	1
Panel B: Pre-debt crisis period: 2005-2009					
Total assets (in 000' Euros)	279,279.80	77,666.30	1,127,450.58	15,768,923.00	857.45
Shareholders' funds (in 000' Euros)	133,434.35	31,786.62	467,423.35	6,449,225.00	-43,732.10
Long term debt (in 000' Euros)	69,169.01	9,116.10	415,400.65	5,849,872.00	0.00
Current liabilities (in 000' Euros)	67,353.08	18,253.40	232,295.55	3,057,261.00	25.49
Working capital (in 000' Euros)	34,173.07	11,896.77	115,386.86	1,628,908.00	-73,684.00
Enterprise value (in 000' Euros)	368,476.86	61,234.06	1,364,949.30	16,068,301.00	-1,380.29
ROE %	2.82	4.10	27.40	154.84	-228.73
ROA %	2.19	1.92	9.53	74.32	-99.94
Profit margin %	7.94	5.52	22.35	100.00	-88.09
Gross Margin %	33.74	28.36	24.34	100.00	-31.68
EBITDA Margin %	13.66	11.58	21.70	96.05	-99.47
EBIT Margin %	8.93	7.34	21.88	100.00	-99.81
Market capitalisation (in mil Euros)	277.11	33.71	1,039.99	12,351.79	1.00
Earnings per share	0.11	0.09	1.92	11.56	-28.24
Cash flow per share	0.46	0.26	1.43	13.44	-7.41
Book Value per share	5.07	2.43	14.98	207.86	-4.04
Price / earnings ratio	33.39	13.13	81.14	925.11	0.00
Price / book value ratio	1.61	0.95	3.89	96.51	-8.74
Market capitalisation/ Total assets (Tobin's Q)	0.62	0.41	0.83	9.73	0.00
Number of employees	539	121	2,636	34,000	1
Number of board members	8	7	2	17	4
% of outside directors	54.06	50.00	16.33	92.31	7.47
Number of years of operation	33	28	22	130	1
Panel C: Debt crisis period: 2010-2014					
Total assets (in 000' Euros)	312,011.57	65,515.83	1,278,538.82	16,171,222.00	947.36
Shareholders' funds (in 000' Euros)	130,881.70	25,589.38	502,470.89	6,746,334.00	-430,716.00
Long term debt (in 000' Euros)	79,006.64	8,096.31	469,085.03	7,559,734.00	0.00
Current liabilities (in 000' Euros)	93,230.48	20,373.24	337,103.86	3,766,589.00	58.00
Working capital (in 000' Euros)	25,021.82	7,958.73	129,571.12	1,851,839.00	-1,677,007.00
Enterprise value (in 000' Euros)	232,881.41	43,754.21	851,468.01	9,941,423.00	-4,969.59
ROE %	-17.67	-2.59	70.40	98.28	-791.69
ROA %	-4.64	-1.85	12.58	56.38	-98.36
Profit margin %	-4.69	-1.23	23.80	100.00	-98.68
Gross Margin %	30.91	25.23	28.19	100.00	-84.78
EBITDA Margin %	4.94	6.20	24.00	81.60	-99.07
EBIT Margin %	-1.50	1.79	24.32	100.00	-99.18
Market capitalisation (in mil Euros)	124.70	11.13	420.89	4,739.75	1.00
Earnings per share	-0.59	-0.09	6.67	23.16	-177.19
Cash flow per share	-0.27	0.01	6.23	24.72	-166.64
Book Value per share	3.36	1.66	10.91	176.58	-54.90
Price / earnings ratio - close	30.24	11.89	67.49	665.56	0.00
Price / book value ratio - close	1.43	0.41	19.42	587.13	-7.57
Market capitalisation/ Total assets (Tobin's Q)	0.30	0.16	0.45	4.34	0.00
Number of employees	386	117	1,206	21,288	1
Number of board members	8	7	2	17	4
% of outside directors	56.47	57.14	15.06	90.91	22.22
Number of years of operation	38	33	22	135	6

Table 3. Correlation matrix

	Tobin's Q	Size	Leverage	Age	Liquidity	Board	Outsiders	Duality	Auditor
Tobin's Q	1								
	-								
Size	0.099***	1							
	3.98	-							
Leverage	-0.184***	-0.036	1						
	-7.50	-1.46	-						
Age	-0.221***	0.091***	-0.063**	1					
	-9.07	3.66	-2.52	-					
Liquidity	0.033	-0.095***	-0.306***	0.034	1				
	1.34	-3.83	-12.87	1.38	-				
Board	0.124***	0.505***	-0.161***	0.095***	0.002	1			
	5.01	23.44	-6.55	3.85	0.09	-			
Outsiders	0.114***	0.130***	0.066***	-0.090***	-0.024	0.139***	1		
	4.60	5.24	2.63	-3.63	-0.95	5.64	-		
Duality	0.049**	0.138***	-0.157***	0.143***	0.065***	0.280***	-0.072***	1	
	1.96	5.58	-6.39	5.80	2.61	11.68	-2.88	-	
Auditor	0.036	0.414***	-0.027	0.100***	-0.009	0.226***	0.277***	0.146***	1
	1.45	18.26	-1.10	4.02	-0.36	9.30	11.54	5.92	-

3.3. Model specification

To test the effects of corporate governance structures on firm performance, we employ panel data analysis, as our dataset contains a number of cross-sectional units and is applied over ten years (2005-2014). Previous studies (see Daskalakis and Psillaki, 2008; Psillaki and Daskalakis, 2009; Dasilas and Papasyriopoulos, 2015) have argued that panel models provide superior estimates compared to the cross-sectional models employed in most prior studies. The dependent variable is one of the four financial performance measures (Tobin's Q, ROA, net profit margin and EBITDA margin), and the independent variables are: (i) Board as measured by the logarithm of the number of board members, (ii) Outside as measured by the proportion of independent and non-executive board members, (iii) Duality which is a dichotomous variable that takes the value of 1 when the same person holds the CEO and chairman positions and 0 otherwise, (iv) Auditor is a dummy variable that takes the value of 1 when one of the Big 4 auditing companies is the main auditor and 0 otherwise, (v) Firm size as measured by the logarithm of total assets, (vi) Leverage is calculated as total debt scaled by total assets, (vii) Age is the logarithm of the number of years of firms' operation and (viii) Liquidity is proxied by the current ratio (current assets over current liabilities). At second stage, we regress the above model by interacting all control variables with a crisis dummy that takes the value of 1 in the debt crisis period (2010-2014) and 0 in the pre-debt crisis period (2005-2009) to test for differences between pre- and debt crisis periods.

The relationship between corporate governance and firm performance is tested using the Ordinary Least Squares (OLS) and controlling for year and industry effects. According to Brooks (2008), OLS estimator is considered the most appropriate since it renders the lowest variance among the class of linear unbiased estimators. All regression models are tested for fixed effects using the Hausman test. The general form of the model can be specified as:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + ... + \beta_n X_{it} + \varepsilon_{it} \quad i = 1,.......,N \quad t = 1,.......,T \tag{1}$$

where i denotes the firm (cross section dimension) and t denotes time (time series dimension). Therefore, Y_{it} is the dependent variable of pooling N cross sectional observations and T time series observations, and X_{it} are the independent variables pooling N cross sectional observations and T time series observations.

4. EMPIRICAL RESULTS

4.1. Regression results

Table 4 reports the results for the impact of corporate governance mechanisms and firm-specific factors on firm performance. In the first model Tobin's Q is regressed against firm-specific factors. We see that the coefficient of size is positive and statistically significant at the 1% level. This result is in line with the notion that as the firm size increases, firm performance also increases. On the other hand, leverage and age are negatively associated with firm performance. These results imply that matured firms tend to take on more debt since they have greater debt capacity compared to younger companies. However, high levels of debt produce more interest payments which erode corporate profits. Moreover, the negative coefficient of the company age suggests that younger companies perform better since these companies are more flexible than older ones, which allows them to take advantage of growth opportunities (Hermes and Katsigianni, 2011). Finally, liquidity does not seem to explain much of the variation in corporate performance. In model 2 Tobin's Q is regressed against both corporate governance and firm-specific factors. We see that firm size still presents its positive effect on Tobin's Q, whereas leverage and age are negatively associated with Tobin's Q.

When looking at the corporate governance factors, we observe a positive and statistically significant relationship between Tobin's Q and board size. The estimate for the board-size log coefficient of 0.164 implies that expanding a six-person board

by one member means an increase in Tobin's Q of that revealed a positive association between board size and firm performance such as Beiner, Drobetz, Markus, and Zimmermann (2006) and Henry (2008). The proportion of independent and non-executive (outside directors) members impacts positively Tobin's Q. This positive relationship indicates that the market considers outside directors in the firm board as good corporate governance practice since their presence guarantees optimal decisions making at corporate level. CEO duality has a positive but non-significant relationship with firm performance. Consequently, the performance of the Greek listed firms does not alter when the CEO and the chairman of the firm are occupied by different persons. This result is consistent with that found by Haniffa and Hudaib (2006) and Sulong and Nor (2010) who claimed that separating the roles of the CEO and chairman positions does not play any significant role in the performance of Malaysian listed firms. With respect to the audit variable, the finding shows that there is a negative association with Tobin's Q across the whole period, though not significant. This result is consistent with that found by Vefeas and Theodorou (1998), Weir and Laing (2000), Weir, Laing and McKnight (2002) and Mangena and Chamisa (2008).

Columns 3 and 4 display the results from

about 0.03. This finding is in line with prior studies regression analysis where the dependent variable is ROA. We observe a positive and statistically significant association between firm size and performance for both models 3 and 4. This finding is in line with previous studies (e.g., Weir and Laing, 2000; Bozec, 2005) which found that ROA and firm size are positively linked. The association between debt and firm performance is negative and statistically significant at the 1% level in models 3 and 4. This result is in line with the agency theory according to which debt is a good mechanism to make managers more disciplined to pursue profit maximization. The coefficient of age is negative and statistically significant at the 1% level, indicating that long-established companies tend to burn profits as they are approaching the maturity or exit stage of the life cycle. Auditor is the sole corporate governance variable that displays significant coefficient. In fact, the coefficient is negative indicating that the auditing provided by non-Big 4s is linked to better corporate performance. This is an expected outcome since the great majority of the Greek listed firms are being audited by SOEL which is the local leader in auditing services in Greece and few companies opt for Big 4s. Board size, outside directors and duality display non-significant coefficients when ROA is the dependent variable.

Table 4. Panel regression results

	Tobin's Q	Tobin's Q	ROA	ROA
Intercept	0.826***	0.389**	-4.474*	-6.153**
	(5.18)	(2.12)	(-1.83)	(-2.17)
Size	0.128***	0.075**	3.730***	4.016***
	(4.95)	(2.38)	(9.15)	(7.94)
Leverage	-0.342***	-0.321***	-10.108***	-10.098***
	(-6.71)	(-6.24)	(-14.39)	(-14.21)
Age	-0.242***	-0.228***	-2.940***	-2.928***
	(-8.83)	(-8.28)	(-7.25)	(-7.12)
Liquidity	-0.001	-0.001	0.045	0.044
	(-0.14)	(-0.22)	(0.58)	(0.56)
Board		0.164***		-0.217
		(2.59)		(-0.22)
Outside		0.540***		0.987
		(5.33)		(0.63)
Duality		0.045		0.605
		(1.43)		(1.22)
Auditor		-0.044		-1.148*
		(-1.09)		(-1.79)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
No. of Obs.	1,611	1,611	1,764	1,764
Adjusted R-squared	0.177	0.196	0.246	0.247
F-statistic	27.62***	24.07***	45.35***	34.94***

Notes: The dependent variable is either Tobin's Q or ROA. Tobin's Q is the market value of equity divided by the book value of assets. ROA is defined as the earnings before interest and taxes scaled by total assets. The independent variables include: (i) Firm size is measured by the logarithm of total assets, (ii) Leverage is calculated as total debt scaled by total assets, (iii) Age is the logarithm of the number of years of firms' operation and (iv) Liquidity is proxied by the current ratio, that is, current assets over current liabilities, (v) Board is measured by the logarithm of the number of board members, (vi) Outside is measured by the proportion of independent and non-executive board members, (vii) Duality is a dichotomous variable that takes the value of 1 when the same person holds the CEO and chairman positions and 0 otherwise, (viii) Auditor is a dummy variable that takes the value of 1 when one of the Big 4 auditing companies is the main auditor and 0 otherwise. T-statistics are in parentheses.
*, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

The main contribution of the current study is the investigation of the relationship between corporate governance and firm performance in the crisis period. Table 5 reports the results from four regressions where all independent variables are

interacted with a dummy variable that captures pre- and crisis periods. We find that firm size is positively associated with both performance measures (Tobin's Q and ROA) displaying a significant coefficient at the 1% level in all

regressions. Leverage and age have the same negative sign and present statistical significance with all measures of firm performance as in Table 4. Contrarily, liquidity fails to exert significant effect on corporate performance. Regarding corporate governance variables, we demonstrate a positive impact of board size and composition on Tobin's Q. Notably, the coefficient of CEO duality is positive and statistically significant in models 2 and 4 implying that the unitary leadership structure (duality) is more beneficial for corporate profitability.

Looking at the interactions of crisis dummy with all control variables, we see that the effect of firm size on Tobin's Q is less during the crisis period, while that of leverage and age is stronger for the same period. At the same time, the role of outside directors in determining firm profitability is weakened in the crisis period, while that of auditors is strengthened. Finally, CEO duality seems to relate less to firm performance in the crisis period. Collectively, the above evidence suggests that the consequences of the debt crisis necessitated for greater management separation and stronger international audit certification as offered by Big 4s.

Table 5. Panel regression results in the pre- and debt crisis periods

	Tobin's Q	Tobin's Q	ROA	ROA
Intercept	0.760***	0.337*	-3.952	-4.587
	(4.78)	(1.85)	(-1.64)	(-1.63)
Size	0.271***	0.224***	3.678***	3.665***
	(7.03)	(4.75)	(6.30)	(5.07)
Leverage	-0.667***	-0.585***	-3.731***	-3.704***
	(-6.25)	(-5.46)	(-3.88)	(-3.84)
Age	-0.362***	-0.339***	-3.187***	-3.205***
	(-9.91)	(-9.23)	(-6.20)	(-6.14)
Liquidity	-0.013	-0.010	0.081	0.074
	(-1.59)	(-1.17)	(0.63)	(0.57)
Board		0.176*		-0.951
		(1.97)		(-0.70)
Outside		0.831***		2.690
		(5.82)		(1.28)
Duality		0.099**		1.178*
		(2.16)		(1.72)
Auditor		-0.152**		-0.052
		(-2.50)		(-0.06)
Size*crisis	-0.249***	-0.247***	-0.004	0.935
	(-4.85)	(-3.93)	(-0.01)	(0.94)
Leverage*crisis	0.412***	0.336***	12.906***	13.185***
	(3.41)	(2.76)	(9.42)	(9.45)
Age*crisis	0.256***	0.238***	0.527	0.631
	(4.71)	(4.36)	(0.65)	(0.77)
Liquidity*crisis	0.018*	0.013	-0.138	-0.126
	(1.73)	(1.31)	(-0.87)	(-0.79)
Board*crisis		-0.054		-0.546
		(-0.43)		(-0.28)
Outside*crisis		-0.613***		-2.826
		(-3.07)		(-0.91)
Duality*crisis		-0.109*		-1.130
		(-1.74)		(-1.34)
Auditor*crisis		0.186**		1.847*
		(2.30)		(1.87)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
No. of Obs.	1,611	1,611	1,764	1,764
Adjusted R-squared	0.202	0.224	0.283	0.284
F-statistic	24.92***	19.54***	41.94***	29.02***

Notes: The dependent variable is either Tobin's Q or ROA. Tobin's Q is the market value of equity divided by the book value of assets. ROA is defined as the earnings before interest and taxes scaled by total assets. The independent variables include: (i) Firm size is measured by the logarithm of total assets, (ii) Leverage is calculated as total debt scaled by total assets, (iii) Age is the logarithm of the number of years of firms' operation and (iv) Liquidity is proxied by the current ratio, that is, current assets over current liabilities, (v) Board is measured by the logarithm of the number of board members, (vi) Outside is measured by the proportion of independent and non-executive board members, (vii) Duality is a dichotomous variable that takes the value of 1 when the same person holds the CEO and chairman positions and 0 otherwise, (viii) Auditor is a dummy variable that takes the value of 1 when one of the Big 4 auditing companies is the main auditor and 0 otherwise, (ix) crisis is a dummy that takes the value of 1 during the debt crisis period (2010-2014) and 0 in the pre-debt crisis period (2005-2009). T-statistics are in parentheses.

*, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

4.2. Sensitivity tests

As a sensitivity test we use two alternative performance ratios (i.e., net profit margin and EBITDA margin) and some modifications in control variables in order to examine whether the relationship between firm performance, firm-specific factors and corporate performance characteristics is robust to alternative metrics. In particular, we define net profit margin (NPM) as net profit divided by total

sales. EBITDA margin is defined as the earnings before interest, taxes, depreciation and amortization scaled by total sales. Firm size is calculated as the logarithm of market capitalization. Instead of using leverage, we employ gearing defined as total debt to total equity (debt-to-equity ratio), liquidity is proxied by the acid-test ratio (current assets minus inventory divided by current liabilities). We also add a fifth firm-specific factor, that is, growth as captured by Tobin's Q which is not correlated with the alternative performance ratios (NPM and EBITDA margin).

Table 6 reports the results. In models 1 and 2 NPM is the dependent variable and in models 3 and 4 EBITDA margin is the dependent variable. As in Table 4, firm size (measured by the logarithm of market capitalization) has a positive and statistically significant impact on the NPM and EBITDA margin. Additionally, gearing and age are negatively associated with the two alternative performance

ratios, a finding which corroborates that in Table 4. In contrast to the current ratio, the acid-test ratio, which proxies liquidity, has a positive and statistically significant effect on firm profitability. Finally, growth opportunities have a positive and statistically significant coefficient in all regressions implying that the potential of growth boosts corporate profits.

Surprisingly, board size is negatively related with NPM and EBITDA margin, which is in line with prior evidence found by Eisenberg, Sundregen and Wells (1998), Ho and Williams (2003), Kiel and Nicholson (2003), Mangena and Chamisa (2008) and Guest (2009). CEO duality has a positive coefficient in all regressions, however, being statistically significant only when is regressed against NPM. As in Table 4, auditor displays a negative coefficient in all regressions which is statistically significant at the 5% level in model 4.

Table 6. Panel regression results using alternative performance measures

	NPM	NPM	EBITDA Margin	EBITDA Margin
Intercept	5.024	15.143***	20.240***	22.974***
	(1.45)	(2.91)	(5.57)	(4.18)
Size	2.880***	3.572***	2.193***	2.866***
	(8.72)	(8.81)	(6.39)	(6.81)
Gearing	-0.024***	-0.023***	-0.022***	-0.022***
	(-5.64)	(-5.47)	(-5.03)	(-4.93)
Age	-4.072***	-4.307***	-4.916***	-4.546***
	(-4.25)	(-4.39)	(-4.85)	(-4.36)
Liquidity	0.929***	0.906***	0.458**	0.458**
	(3.60)	(3.51)	(2.20)	(2.20)
Growth	2.636***	2.188**	2.429***	1.764*
	(2.94)	(2.39)	(2.58)	(1.83)
Board		-5.556***		-4.376*
		(-2.66)		(-2.00)
Outside		-2.273		5.375
		(-0.65)		(1.48)
Duality		2.091*		0.999
		(1.97)		(0.89)
Auditor		-1.660		-3.582**
		(-1.21)		(-2.50)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
No. of Obs.	1,376	1,376	1,395	1,395
Adjusted R-squared	0.220	0.224	0.126	0.130
F-statistic	28.69***	23.10***	15.37***	12.58***

Notes: The dependent variable is either NPM or EIBTDA margin. NPM is the net profit margin calculated as net profit divided by total sales. EBITDA margin is defined as the earnings before interest, taxes, depreciation and amortization scaled by total sales. The independent variables include: (i) Firm size is measured by the logarithm of market capitalization, (ii) Leverage is calculated as total debt scaled by total equity, (iii) Age is the logarithm of the number of years of firms' operation and (iv) Gearing is proxied by the acid-test ratio, that is, current assets minus inventory over current liabilities, (v) Growth is measured by Tobin's Q, that is, the market value of equity divided by the book value of assets, (vi) Board is measured by the logarithm of the number of board members, (vii) Outside is measured by the proportion of independent and non-executive board members, (viii) Duality is a dichotomous variable that takes the value of 1 when the same person holds the CEO and chairman positions and 0 otherwise, (ix) Auditor is a dummy variable that takes the value of 1 when one of the Big 4 auditing companies is the main auditor and 0 otherwise. T-statistics are in parentheses.

*, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 7 reiterates all regressions reported in Table 5 by replacing Tobin's Q and ROA with NPM and EBITDA margin, respectively. The results highlight the diminishing role of outside directors in construing profit margins during the crisis period. On the other hand, the role of liquidity and growth opportunities is magnified during the crisis period as shown by the positive and statistically significant

coefficient in most of the regressions. Finally, the number of years of operation seems to play less significant role in corporate profitability in periods of economic downturn. Overall, the above evidence signifies the liquidity position of companies struggling to survive and the role of growth opportunities to offer a prospect of profit expansion in the foreseeable future.

Table 7. Panel regression results in the pre- and debt crisis periods using alternative performance measures

	NPM	*NPM*	*EBITDA Margin*	*EBITDA Margin*
Intercept	5.944*	16.909***	21.733***	23.499***
	(1.70)	(3.22)	(5.92)	(4.22)
Size	2.754***	3.558***	2.292***	2.974***
	(5.59)	(5.94)	(4.42)	(4.74)
Gearing	-0.033***	-0.032***	-0.030***	-0.030***
	(-3.96)	(-3.90)	(-3.41)	(-3.39)
Age	-1.736	-1.601	-2.796**	-2.450*
	(-1.38)	(-1.25)	(-2.08)	(-1.77)
Liquidity	0.069	0.065	0.248	0.224
	(0.20)	(0.19)	(0.68)	(0.61)
Growth	2.134**	1.666	1.379	0.965
	(2.07)	(1.57)	(1.26)	(0.86)
Board		-6.944**		-4.972*
		(-2.43)		(-1.66)
Outside		2.501		3.013
		(0.53)		(0.60)
Duality		1.400		0.377
		(0.94)		(0.24)
Auditor		-2.016		-2.515
		(-1.01)		(-1.20)
Size*crisis	-0.138	-0.301	-0.549	-0.661
	(-0.21)	(-0.36)	(-0.78)	(-0.76)
Gearing*crisis	0.013	0.014	0.012	0.012
	(1.38)	(1.44)	(1.15)	(1.16)
Age*crisis	-4.961***	-6.004***	-5.004**	-4.911**
	(-2.56)	(-3.03)	(-2.45)	(-2.34)
Liquidity*crisis	1.711***	1.776***	-0.436	-0.471
	(3.28)	(3.39)	(-0.99)	(-1.06)
Growth*crisis	3.947*	3.658	6.699***	5.939**
	(1.73)	(1.56)	(2.82)	(2.42)
Board*crisis		3.344		2.357
		(0.80)		(0.54)
Outside*crisis		-13.212*		4.366
		(-1.90)		(0.60)
Duality*crisis		1.289		0.885
		(0.61)		(0.40)
Auditor*crisis		1.122		-1.532
		(0.41)		(-0.53)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
No. of Obs.	1,376	1,376	1,395	1,395
Adjusted R-squared	0.231	0.237	0.135	0.136
F-statistic	22.79***	16.78***	12.48***	9.15***

Notes: The dependent variable is either NPM or EIBTDA margin. NPM is the net profit margin calculated as net profit divided by total sales. EBITDA margin is defined as the earnings before interest, taxes, depreciation and amortization scaled by total sales. The independent variables include: (i) Firm size is measured by the logarithm of market capitalization, (ii) Gearing is calculated as total debt scaled by total equity, (iii) Age is the logarithm of the number of years of firms' operation and (iv) Liquidity is proxied by the acid-test ratio, that is, current assets minus inventory over current liabilities, (v) Growth is measured by Tobin's Q, that is, the market value of equity divided by the book value of assets, (vi) Board is measured by the logarithm of the number of board members, (vii) Outside is measured by the proportion of independent and non-executive board members, (viii) Duality is a dichotomous variable that takes the value of 1 when the same person holds the CEO and chairman positions and 0 otherwise, (ix) Auditor is a dummy variable that takes the value of 1 when one of the Big 4 auditing companies is the main auditor and 0 otherwise, (x) crisis is a dummy that takes the value of 1 during the debt crisis period (2010-2014) and 0 in the pre-debt crisis period (2005-2009). T-statistics are in parentheses.

*, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

5. CONCLUSIONS

In the last two decades several studies have been conducted to explore the relationship between firm performance and corporate governance. The results were mixed concerning the impact of corporate governance characteristics on corporate performance. However, prior evidence was mainly based on normal economic conditions. No study so far has been conducted to test the above relationship from a market that has been severely hit for more than six years resulting in the closure of thousands of SMEs and triggering the delisting of almost 100 listed companies. The current study

attempts to fill this void providing evidence from the Greek stock market by examining the relationship between firm performance and corporate governance in the pre- and the ongoing crisis period.

To examine the relationship between corporate governance and firm performance we employed four different performance ratios, that is, Tobin's Q, ROA, NPM and EBITDA margin. Apart from the classical firm-specific factors that have been examined as potential firm performance determinants (e.g., age, size, liquidity, leverage) we also included corporate governance mechanisms such as board size, board composition, leadership structure and auditing. Our

results highlight the importance of board size and board independence as the two governance structures that enhance corporate profitability. However, the role of these governance mechanisms weakens during the crisis period while auditing by Big 4 auditors seems to provide the appropriate impetus to corporate performance. Regarding firm-specific determinants of corporate performance, we see that the effect of leverage on performance is strengthened during the crisis period. This result is not a surprise in the sense that the Greek debt crisis period was swiftly linked with a disruption in bank lending and an exclusion from international financial markets. In addition to leverage, liquidity is another significant determinant of profitability during the crisis period.

The empirical part presents some limitations concerning the exclusion of a significant number of companies delisted from the Athens Stock Exchange during the crisis period. Moreover, the limit number of credit ratings available to assess debt and assets quality does not allow making the appropriate inferences regarding the impact of leverage on firm performance.

Our results have useful managerial implications for managers and policy makers who wish to make corporate governance a useful tool in maximizing profits in periods of capital constraints. However, to derive more robust results as regards with the relationship between corporate governance mechanisms and firm performance, different aspects of corporate governance variables, such as executive compensation, audit fees, nominating committees should be regarded in future studies.

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