

UNIVERSITÀ DELLA CALABRIA



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**Gender Diversity as Determinants of Firm's Decisions and  
Performance: Role of Moderators and Corruption**

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## **Abstract of the thesis**

The objective of this doctoral thesis is to provide insights to the literature on gender-diversity. Thus, all the work shares a common theme of gender-diversity, exploring how the specific features of female affect business activities and performance. In particular, three empirical chapters directly investigate the role of female representation in business on financial decisions and corporate performance, or indirectly the gender specific effect of corruption on firm value. The first chapter is an empirical analysis of the relationship between gender-diversity in management and debt maturity choice of firm for a sample of European corporations. It is aimed to reinforce the role of gender in determining the debt maturity choices, by implementing the role of national cultural moderators on the extent of the premised relationship. The second chapter examines how gender heterogeneity in management or board level affects the financial performance of the firm for a sample of European companies, by applying the national cultural factors as moderator. Finally, the third chapter investigates the relationship between the firm-level corruption and financial performance of the firm for a sample of European enterprises, by highlighting the significance of gender-specific corruption in exploring the firm-level consequences of corruption. In summary, the empirical findings of all three chapters advocate that gender is one of the important dimensions of human capital and can reflect the functioning and decisions of company in multiple ways. Specifically, the outcomes of our empirical studies shed light on how the presence of female in the organization can contribute to improve the overall performance of the companies. The results recommend promoting women empowerment policies in order to effectively utilize this untapped and unique source of human capital. In addition, the last study evidence of firm-specific corruption effects on corporate performance emphasize that corruption in any form is not just a matter of ethics, but it is unbearable to have huge losses to enterprises value as it seems like a slow poison, gradually damaging the entire governing and management structure of any organization and it must be cured.

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# Abstract of the thesis

## In Italian

L'obiettivo della presente tesi di dottorato è arricchire con tre lavori empirici di ricerca la letteratura sulla *gender diversity*. Il trait d'union del lavoro di tesi è il ruolo delle donne nelle imprese, in quanto le caratteristiche di genere rappresentano una *proxy* di come il differente talento manageriale e composizione del team dirigenziale influenzi l'attività aziendale. In particolare vengono indagati i temi della struttura finanziaria e della corruzione, esplorando il ruolo della partecipazione delle donne sulle decisioni finanziarie aziendali e sulle performance delle imprese. Il primo capitolo approfondisce empiricamente il rapporto tra *gender diversity* e *debt maturity* su un campione di imprese europee. In particolare, la diversa propensione al rischio delle donne sembra influenzare le scelte di *maturity* del debito in maniera più conservativa e prudentiale. Il secondo capitolo indaga la capacità dell'eterogeneità di genere nella composizione del management aziendale e del CdA di influenzare le performance delle imprese in Europa, considerando di come differenze culturali fra nazioni possano modificare tale rapporto. Il terzo capitolo della tesi prende in esame il rapporto tra la corruzione a livello di impresa e la performance delle imprese sempre su un campione di imprese europee, mettendo in evidenza anche in questo caso il differente ruolo delle donne sulle conseguenze della corruzione in azienda. In sintesi, i risultati di tutti e tre i capitoli suggeriscono che la *gender diversity* rappresenta una dimensione molto importante del capitale umano, influenzando notevolmente il funzionamento delle imprese e la qualità delle decisioni aziendali. In particolare, emerge un prevalente effetto positivo del gender sulle performance aziendale.



## Introduction of thesis

In present scenario of economic, political and social development, the gender diversity has become a fervent topic of academic research, political debates and societal mandates, drawing the attention of many researchers, economists, investors and policy developers. Before going into the depth of our work, it is necessary to understand what do we mean by gender diversity? The term ‘gender diversity’ refers to equitable or fair representation between genders. We discuss about gender diversity in the organizational environment, where men have been a dominating force since a long period of time. Regardless of the remarkable improvement of females’ representation in the labour force and middle-level positions in the organizations, the females remain underrepresented at the top hierarchy of organizations as well as in other decisive positions. In fact, the gender is one of important dimensions of human capital, where female workforce constitutes the biggest pool of untapped human resource. Eventually, the presence of gender diversity can add value to the firm as the heterogeneity in resources, skills, knowledge and competencies are the source of sustained competitive advantage to the enterprises. Since the late of 20<sup>th</sup> century, constant failures of corporate governance (e.g. Enron, WorldCom, Tyco, and Volkswagen among others) have directed the United States towards a passage of Sarbanes-Oxley Act of 2002, where the progress of women on board has been highlighted. Simultaneously in the context of Europe, many nations have answered to the global issue of governance failures by passing legislation and/or guidelines to balance gender-composition on the top-level of management and board of the companies. In Europe, the strategic approach of gender balancing has been led by Norway, being the first European country to approve a gender quota law that 40% of the total directors should be composed by women on the company board. Similarly, in U.K., Higgs’s report (2003) by the British Department of Trade and Industry, underlined the issue of gender balancing that gender-diversity improves the board effectiveness as well as encourages the greater involvement of females on the boards. Regardless of all apparent efforts, gender-diversity has not gained adequate attention in the research literature (Dwyer et al., 2003) and essentially, it should be awarded more diligence to appreciate the real dynamics of gender diversity in business field.

In psychology literature, it has been suggested that women and men are systematically different and possess different behavioural characteristics. For instance, the intellectual

abilities of females and males are different, such as men's ability in mathematics, similarly women's ability in oral and interpersonal skills (Maccoby & Jacklin, 1974). These gender differences can generate unique patterns of thinking that could reflect the decisions. De facto, this kind of heterogeneity can not only be assumed to reflect personal decisions but can also be assumed to affect professional life decisions of both genders. In organizational settings, the managers or executives are often supposed to have their own 'way' when they undertake any financing and other strategic decisions, thereby shaping the nature of the companies that they manage (Bertrand & Schoar, 2003). Considering the existing research work on gender-diversity, we split our interdisciplinary empirical work into three chapters: 1) the role of gender-diversity in shaping the nature of the corporate financing choices, 2) the role of gender-diversity in determining the corporate performance, and 3) the investigation of corporate performance under the shadow of dishonest or corrupt behaviour dominance and examination of the effects of gender-based dishonest or corrupt behaviour on performance.

First chapter of thesis is based on the relationship between gender diversity and the debt-maturity choices of the firm. The classical corporate finance traditionally ignores the effects of managers' characteristics on financial decision making and basically, these classical models of corporate finance focus on firm characteristics rather than managerial ones to explore the differences in behaviours of firms. There are many evidences that approve that managers' behavioural differences affect the financing decisions of the firms (Ben-David et al., 2007).

In this direction, gender is one of key traits of executives which could be used to explain the differences of firm behaviour. To obtain the primary goal of shareholder value maximization, the corporate financial decisions revolve around. In simple words, the financial decisions of firm can be defined as the type of capital sources, period, and cost of financing. A big pool of literature on the choice between debt and equity financing dominates the studies on the debt maturity structure that is quite significant. The debt maturity decision primarily refers to a choice that has to be made between short-term and long-term debt, and it is an integral part of the capital structure decision. The choice of the debt maturity structure is a vital decision to firms, since a poorly chosen mix debts may lead the firm towards an inefficient liquidation of positive NPVs investment plans.

Although the considerable progress has been made by the existing empirical research on the maturity structure of corporate debt, there is still scope for further areas of inquiry. The most-cited studies that examine the determinants of debt maturity include: (i) Titman and Wessels (1988), who report that smaller firms prefer to have more amount of short-term debt compared to long-term debt in their capital structure, (ii) Mitchell (1991), who suggests that

companies with stocks that are not traded are more likely to issue short-term debt in order to reduce the costs that occur due to the informational asymmetry, and (iii) Mitchell (1993), who argues a negative correlation between maturity and leverage. In fact, most of the previous studies on debt maturity have been conducted either in the U.S. context (e.g. Morris, 1975; Barclay & Smith, 1995; Berlin & Mester, 1992; Scherr & Hulburt, 2001; and Stohs & Mauer, 1996) or in U.K. context such as Ooi (1999) and Ozkan (2000 and 2002). Only a small fragment of the research papers is based on cross-country comparison (Antoniou et al., 2006; Fan et al., 2003) and mainly empirical evidences are present in the relation to market-based financial systems rather than bank-based financial systems (Cai et al., 1999). In addition, due to the insufficient empirical evidence on the corporate debt maturity structure in the case of advanced economies, there is nearly no empirical evidence for the transition countries. A few exceptions are the research work of Demircuc-Kunt & Maksimovic (1999), who investigate the debt maturity structure, implementing aggregated data of firms in a sample of 30 developed and developing countries, and Erol (2004), who studies the strategic content of debt maturity in a sample of 15 manufacturing sectors in context of Turkey.

In this direction, the aim of our first empirical chapter of thesis is to fill the premised gap on corporate finance literature by investigating the relationship between gender diversity and debt maturity choice of the firm on a sample of listed and unlisted European companies. To analyse the influence of executives' gender on the firm debt maturity structure across nations, we investigate this relationship in the shadow of different cultures, since human attributes are being shaped by national culture. The prior gender-differences studies argue that women are less overconfident than men (Barber & Odean, 2001), as they underestimate their knowledge and skills and are more careful about money-matters and more likely to hire financial experts to deal with financial matters. This low level of overconfidence in females leads them to be more conservative not only in their personal but also in their professional life decisions. In this regard, the national culture may provide vital implications regarding the extent to which overconfidence can explain the financial decisions of female executives (Antonczyk & Salzman, 2014). Therefore, we also analyse the effect of gender diversity on debt maturity shaped by masculinity/femininity features among countries. The outcomes of the chapter confirm the significant role of executives' gender in shaping the nature of financing decisions of firm and provides insights of the moderating role of national culture on the degree of relationship.

The second chapter of thesis investigates the relationship between gender diversity and the financial performance of the firm. The previous outcomes on this relationship are mixed

and controversial. On one hand, some studies find evidence that gender diversity enhances the performance of management team and improve governance function of firm (Low et al., 2015; Dezsö & Ross, 2012; Campbell & Mínguez-Vera, 2008; Francoeur et al., 2008; Smith et al. 2006; Farrell & Hersch, 2005; Carter et al., 2003; Erhardt et al., 2003; Du Rietz & Henrekson, 2000). It has been suggested that gender-diversity is a source of information and social diversity (Dezsö & Ross, 2012), as they belong to different background, knowledge and experience in comparison to traditional male groups. Therefore, they are assumed to provide innovative ideas, perspectives and beliefs to group/team members in order to enhance the overall performance of team/group and to increase in the shareholders' value through competitive advantage. On the other hand, some authors find either negative effects of gender diversity on firm performance (Shrader et al., 1997 and Adams & Ferreira, 2009) or no effects (Dwyer et al., 2003). These mixed and controversial findings on the relationship between gender-diversity and financial performance of firm hint further investigation as it could possible that there are some moderating factors, affecting the degree of this aforementioned relationship. Further, the researchers recommendations inspired by the mixed empirical findings have encouraged us towards a deep investigation of the relationship between the gender-diversity and financial performance in order to reveal the determining factors that improves this relationship. We investigate the relationship between gender-diversity and firm performance by moderating variable namely cultural factors as the national cultural force to shape the human behavioural characteristics could play a vital role to understand the variation of gender effects on firm performance. Moreover, as supplementary analysis, we open up the debate of gender issue in the direction of leadership structure, particularly female CEO-chair leadership (chairwoman) to explore the female role in depth. This chapter employs a sample of listed and unlisted companies across European countries. Unlike to prior studies, we focus on the presence of females on both management and board to represent gender-diversity and examine how EU based firms managed/governed by females differ from the firms without female executives/board members to explore the corporate performance in the presence of females. The empirical results meet the expectation and suggest that gender is an important source of competitive advantage of firm and improves the governance quality of firm. Moreover, the results recommend that females need more support and equality in the societies where they can develop their skills, knowledge and finally, can contribute to improve the overall development of organizations and society.

The last chapter of thesis focuses on the relationship between corruption, gender and firm value. We explore the role of firm-level corrupt behaviour on the financial performance

of the firm. There is a voluminous literature on the global phenomenon of corruption at country-level. Many papers have studied and reported the effects of corruption on the GDP growth of nation. For example, first pioneer empirical work on corruption was done by Mauro (1995), who finds evidence that corruption is detrimental to the propensity of investment thereby economic growth of the nation. In context of country-level evidences of corruption consequences, there are basically two perspectives exist: according to first perspective, it is suggested that corruption hinders the growth, investment and innovation of nation and work like- “sand to the wheels of commerce” (Shleifer & Vishny, 1993; Mauro, 1995; Kaufmann & Wei, 1999; Méon & Sekkat, 2005; Svensson, 2005; Mo, 2001; and Aidt, 2009), whereas the second perspective proposes that corruption might improve the economic growth of the nation, supporting the positive view that corruption works as “grease for the wheels” to stiff government (Leff, 1964; Huntington, 1968; and Acemoglu & Verdier, 1998), thereby improving the efficiency of the system. However, at macro-level effects of corruption on economic growth, the negative aspect of corruption is more prominent and dominates. Whereas, at firm-level, there are limited studies and present mixed findings. Therefore, the existing insufficient and mixed findings indicate to the room for future and auxiliary investigations in this area of research. We notice that mostly empirical findings use either firm-level survey data or country-level survey data to investigate the effects of corruption on financial performance of the firm, facing the potential problem of respondents’ perception bias across survey questions (Kaufmann & Wei, 1999). In the corruption literature, relevant theories and empirical investigation, it is mentioned that the nature of corruption is a very complex, and dynamic. For this reason, the corruption based empirical and theoretical research work are most often considered very complicated as the informal and illegal nature of corrupt or dishonest activities make it hard to measure and explain. Undoubtedly, corruption measures at country-level lead to essential findings to determine its consequences on the economic development of countries, while to explore effects of corruption on firm performance, it is essential to be measured at firm-level to get better estimation of corruption impact on firm performance. Till now, the previous empirical studies on corruption have not focus on the role of gender in exploring the corrupt behaviour differences to determine performance, despite of the fact that gender is one of the most important characteristics of human behaviour, could show a prominence in understanding the consequences of firm corruption on its performance. To fill the above-mentioned gap on literature of corruption and firm performance, we investigate the effects of firm-specific corruption on the economic performance of the firm, using a sample of listed companies across European countries. The findings interpret that corruption at any level

could not be expected to have any positive impact on the performance of the firm. Since corrupt or dishonest nature of individuals (i.e. executives and board of directors) in organizational settings always nourish the self-interest seeking and promote the opportunistic behaviour. This opportunistic behaviour of corrupt members of board and management will promote the agency conflicts and reduce governance as well as management quality. Our empirical results conclude that the corruption is just unacceptable at any form and level and suggest that appropriate strategies must be formulated, combating against corruption.

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# Chapter I

## **Gender representation in management and debt maturity: European evidence**

*This chapter highlights the role of gender heterogeneity in determining the debt maturity choices of the firm, implementing the role of moderators on the degree of relationship. The existing empirical studies on debt maturity basically ignore the possible role that managers' traits may play in shaping this choice. This gap could be at the core of previous controversial results. This chapter explores how gender diversity in management shapes the nature of financing decisions at the corporate level. Using panel data of listed and unlisted European companies, we show that the presence of female executives increases the level of short-term debt financing. Moreover, we examine the financial impact of gender heterogeneity moderated by cultural differences among countries related to masculinity/femininity traits in the societies. Female executives seem to prefer a higher level of short-term debt, especially in countries with a high masculinity score, where competitiveness and material rewards for success are very relevant. These results have potentially important implications for management theory, since they show that companies run by women, particularly in a 'masculine' environment, tend to prefer a more flexible capital structure, reinforcing the hypothesis that female executives are less overconfident.*

## 1.1 Introduction

In the last years, gender diversity has become a central theme of business research, along with societal mandates, political agendas, and economic issues, being a real hot topic nowadays. Gender diversity can add value to firms because, according to the resource-based view of Barney (1991), diversity in resources, competences, and skills provides them with a sustained competitive advantage. In fact, gender is an important dimension of firms' human capital resources. Considerable evolution has occurred with respect to gender diversity in management, as women have increasingly moved into managerial positions (Elsass & Graves, 1997). However, gender diversity has not yet received complete attention in some topics, such as those related to finance.

The psychology literature suggests that males and females are systematically different and tend to have some distinct behavioural attributes. For example, men and women have different cognitive abilities, such as men's proficiency in mathematics and women's proficiency in verbal and interpersonal skills (Maccoby & Jacklin, 1974). These gender differences can encourage unique patterns of thinking that could affect decisions. Such heterogeneity can not only be assumed to reflect private life decisions but can also be supposed to affect professional or business decisions.

In behavioural finance, one of the most significant differences between men and women to consider is the overestimation of their own ability to predict the future, namely overconfidence (Daniel et al., 1998). According to De Bondt & Thaler (1995, p. 389), "Perhaps the most robust finding in the psychology of judgment is that people are overconfident." More generally, overconfidence can be associated with people's propensity to overestimate their own abilities and knowledge and/or the quality and accuracy of the information that they can obtain. Previous studies report that females are less overconfident than males (Barber & Odean, 2001), because they underestimate their knowledge and skills and are more cautious about money-matters and more likely to hire financial experts to deal with financial matters. This low level of overconfidence in females leads them to be more conservative not only in their private-life decisions but also in their professional ones.

The experimental studies by Eckel & Grossman (2002), Johnson & Powell (1994), Levin (1988), and Powell & Ansic (1997), as well as the empirical studies on real financial decisions related to household investment portfolios by Agnew et al. (2003), Barber & Odean (2001), Jianakoplos & Bernasek (1998), and Sunden & Surette (1998), suggest that women are more conservative than men. Many pieces of evidences confirm that managers' behavioural

differences affect the financing decisions of the firms (Ben-David et al., 2007). For example, a recent study by Huang & Kisgen (2013) suggests that male CEOs issue debt more often than female CEOs. In addition, also considering different topics with respect to financial reporting policies, Barua et al. (2010) and Krishnan & Parsons (2008) indicate that firms with female executives and top managers make more cautious and conservative decisions.

In this direction of research, we investigate how gender diversity in management teams affects corporate financing choices, particularly debt maturity. Our study intends to examine how EU-based firms managed by females differ from firms without female managers and even how the eventual dominant presence of females in the management can shape corporate financial decisions. The understanding of these differences can be utilized to gain a better understanding of the debt maturity preferences of firms.

For this purpose, we use a panel of both listed and unlisted European companies over the period 2005–2008. The empirical results confirm the expectation of the study by stating that gender diversity (i.e. representation of females) on the management team significantly affects firm debt maturity choices. This study shows that firms with female executives tend to have a higher level of short-term debt than firms without female executives. The results also suggest that firms with a higher percentage of female executives on the management team tend to have a higher level of short-term debt financing. In addition, firms managed by female CEOs or female CFOs tend to have a larger amount of short-term debt. The evidence of this study is in line with the view of Ben-David et al. (2007), who find that managers who are defined as overconfident, regardless of their gender, are more likely to have a less flexible capital structure than their peers.

Moreover, to show the impact of executives' gender on the firm debt maturity structure across different countries, we investigate this relationship in the shadow of different cultures. Since managerial overconfidence is shaped in part by national culture, we could expect the nature and extent of female executives' overconfidence to vary across countries (Ferris et al., 2013). Consequently, the national culture may have important implications regarding the extent to which overconfidence can explain the financial decisions of female executives (Antonczyk & Salzmann, 2014). Therefore, the study also analyses the effect of gender diversity on debt maturity shaped by *masculinity/femininity* features among countries. The output of the chapter shows the statistically significant effect of gender on debt maturity conditioned by the masculinity rating, which represents a specific feature in each country. We find that female executives in a sample with high masculinity indices, according to Hofstede (1991) related to 'tough' countries devoted to high levels of competitiveness and material rewards for success,

tend to have more short-term debt in comparison with a sample with low masculinity indices (high femininity indices).

This study has several value-added features. First, we consider gender diversity in a management group, something that has not attracted wide attention from researchers in the field of corporate finance. The influence of gender diversity on firm debt maturity choices has scope in the literature and can provide important insights in corporate settings. The chapter contributes to the literature investigating managerial traits and experiences that influence corporate decision making (Benmelech & Frydman, 2015; Bertrand & Schoar, 2003; Cain & McKeon, 2016; Cronqvist et al., 2012, Malmendier & Tate, 2005, 2008; Malmendier et al., 2011) by showing that executive gender is a key trait related to financial corporate choices. This chapter also relates to studies examining how gender diversity relates to differences in corporate decisions.<sup>1</sup> We add to this literature by documenting substantial differences in the managerial overconfidence of male and female executives. Second, the study provides a better understanding of the relationship between gender diversity and debt maturity by analysing the moderating effect of cultural factors, in line with works considering the national culture in capital structure decisions (Antonczyk & Salzmann, 2014), which is considered as one of the vital dimensions that distinguishes firms' behaviour from one country to another. Finally, our sample includes both listed and unlisted firms, whereas most of the previous studies on capital structure focus only on listed companies, allowing our sample to become more representative (Hall & Joergensen, 2015).

The chapter is organized as follows. Section 2 reviews the previous literature and describes the research hypotheses. Section 3 describes the data sample and the research methodology. Section 4 explains the descriptive statistics. Section 5 reports the results, and Section 6 presents the conclusion.

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<sup>1</sup> For example, Weber and Zulehner (2010) document that start-ups with female first hires display a higher likelihood of survival. Adams and Ferreira (2009) provide evidence that the CEO turnover correlates more strongly with poor performance when the board of directors is more gender-diverse. Ahern and Dittmar (2012) document that the introduction of mandatory board member gender quotas led to an increase in acquisitions and performance deterioration in Norwegian publicly traded firms. However, there is little evidence concerning the relation between the gender of top corporate insiders and the corporate choices. One exception is the study by Huang and Kisgen (2013), who document that the propensity to make acquisitions is lower in companies with female CFOs. A second exception is the study of privately owned (US) firms by Cole (2013), who reports cross-sectional evidence that female-owned firms have lower leverage than male-owned firms.

## 1.2 Literature Review and Hypothesis Development

### 1.2.1 Managerial overconfidence and financial policies

Managers are often perceived as having their own ‘style’ when making financing and other strategic decisions, thereby imprinting their personal marks on the companies that they manage (Bertrand & Schoar, 2003). Classical corporate finance traditionally ignores the impact of managers’ characteristics on financial decision making and assumes that all managers are rational and always act in favour of the firm to maximize its value. Basically, classical models of corporate finance rely on firm characteristics rather than managerial ones to explain the different behaviours of firms. However, research on the determinants of the capital structure (Bradley et al., 1984; Smith & Watts, 1992; Titman & Wessels, 1988) shows that a large amount of variation remains unexplained after controlling for firm-level characteristics. For this reason, in recent times, behavioural finance has taken a prominent role in explaining what corporate finance has failed to explain (Baker et al., 2007).

In terms of managerial traits, one of the most widespread and consistent biases is overconfidence<sup>2</sup> (Baker et al., 2007). In particular, overconfident managers generally underestimate the volatility of their firms’ future cash flows (Shefrin, 2001) or overweight their private signals relative to public information (Gervais et al., 2007). There are some studies that argue that managers’ behavioural traits, like overconfidence, among others, are related to corporate financial policies (Ben-David et al., 2007, 2013; Graham et al., 2013; Hackbarth, 2009; and Malmendier et al., 2007). For example, Hackbarth (2009) studies the interaction between financing and investment decisions from a behavioural perspective, namely in the presence of overconfidence, and finds that biased managers choose higher debt levels than rational managers. Moreover, Malmendier et al. (2007) document a positive relation between managerial overconfidence and debt conservatism (preference for debt over equity) and conclude that managerial overconfidence helps to explain the variation in corporate financial policies.

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<sup>2</sup> According to Heaton (2002) and Roll (1986), managerial overconfidence affects a broad set of corporate decisions, like capital expenditure and mergers and acquisitions (Malmendier & Tate, 2005 and 2008).

### *1.2.2 Debt maturity*

In general, corporate financial decisions refer to the type of capital sources, period, and cost of financing. The copious literature on the choice between debt and equity dwarfs the studies on the structure of debt maturity, which is equally important. The debt maturity decision can be defined as a choice must be made between short-term and long-term debt, which is an integral part of the capital structure decision. The choice of the debt maturity structure is important to firms, since a badly chosen mix may cause an inefficient liquidation of positive NPV projects.

Empirical research investigating the maturity structure of corporate debt has made considerable progress, but there is space for further areas of investigation. The most-cited studies that examine the determinants of debt maturity include those of Titman & Wessels (1988), who provide evidence that smaller firms have more short-term debt in their capital structure, Mitchell (1991), who finds that firms with stocks that are not traded are more likely to issue shorter-term debt to minimize the costs that arise due to informational asymmetry, and Mitchell (1993), who finds a negative (positive) correlation between maturity and leverage (firm quality). Most of the previous studies on debt maturity concern the U.S. context, such as that by Morris (1975), which is one of the first papers to focus on this topic. Barclay & Smith (1995), Berlin & Mester (1992), Scherr & Hulburt (2001), and Stohs & Mauer (1996) also cover mainly US firms, while Ooi (1999) and Ozkan (2000, 2002) study UK firms. There is also only a limited list of papers that focus on cross-country comparison (Antoniou et al., 2006; Fan et al., 2003), and more empirical evidence is available in the case of market-based financial systems than in the case of bank-based financial systems (Cai et al., 1999). Finally, since there is limited empirical evidence on the corporate debt maturity structure in the case of advanced economies, there is almost no empirical evidence for transition countries. Exceptions are the works by Demirguc-Kunt & Maksimovic (1999), who examine the debt maturity structure using aggregated data of firms in a sample of 30 developed and developing countries, and Erol (2004), who analyses the strategic content of debt maturity in a sample of 15 manufacturing sectors in Turkey during the period 1990–2000.

Several papers examine the possible determinants of firms' debt maturity decisions, putting forward several hypotheses and identifying potential determining factors. However, these empirical studies have conflicting results. One of the potential explanations and potential lines of research is that the current empirical studies on debt maturity usually rely on firm-level, industry-level, or market-level characteristics to explain corporate financial behaviour

but basically ignore the possible role that managers' traits may play in shaping this choice. Among the few exceptions, Landier & Thesmar (2009) suggest that managerial overconfidence affects the corporate debt maturity structure. Finally, Ben-David et al. (2007) find that overconfident executives have a less flexible capital structure; in particular, the proportion of long-term debt to total debt is higher for firms with managers who are considered to be overconfident in terms of the degree of preciseness regarding the stock market returns. The theory of financial flexibility attempts to interpret financial conservatism from the perspective of preserving the debt capacity to handle unpredicted cash loss or/and to finance profitable investment opportunities.

### *1.2.3 The role of gender diversity in management: research hypotheses*

Research in finance and economics has started to give more consideration to gender diversity in management; there is some evidence that considers the impact of gender on corporate decision policies. The main stream of the literature on gender differences reports that women are less overconfident than men (Barber & Odean, 2001), because they underestimate their knowledge and skills and are more cautious about money matters. This low level of overconfidence in females leads them to be more conservative not only in their private-life decisions but also in their professional ones. It can therefore be possible that female executives, who underestimate their predictions, skills, and knowledge, may be more conservative about their financial decisions, so they can manage the uncertainty aspect of the future. Therefore, firms managed by female executives should adopt a financial policy that can maintain a substantial untapped debt capacity, since in this way they will have easy access to the capital market to respond to future profitable opportunities. In relation to this, Myers (1977) proposes that short-term debt can provide continuous and gradual renegotiation, in which the firm in principle can shift back to all-equity financing or to another source of debt capital at any time. This implies that short-term debt may offer financial flexibility for a firm to adjust its capital structure to avoid an overhang. In a recent empirical study, Huang & Kisgen (2013) examine the corporate financial decisions made by female executives compared with male executives. Huang & Kisgen select a sample of CEOs and show that male executives exhibit relative overconfidence in significant corporate decision making and issue more debt, in particular long-term debt, more often than female executives. Based on the above-mentioned insights, it can be implied that females, who are assumed to be less overconfident and more conservative than males, may prefer a more flexible capital structure.

In summary, consistent with the view of Ben-David et al. (2007), Huang & Kisgen (2013), Landier & Thesmar (2009), and Myers (1977), it can be supposed that females executives may prefer to have more short-term debt than their male counterparts. Thus, following the above stream of research, we develop the following hypothesis:

*Hypothesis 1: Firms managed by female executives tend to have more short-term debt.*

Next, it is interesting to consider the role of the national culture in explaining the possible lower female overconfidence. In fact, the national culture can exert important influences on individual behaviour, and it has the potential to affect the global distribution of overconfidence and the way in which such overconfidence might be exhibited in corporate behaviours. This reflects the idea that managers' cultural beliefs, behaviours, and perspectives will be determined by those of the country in which their firm is headquartered and consequently where they spend the most of their professional time (Ferris et al., 2013). Gender culture differences across countries are commonly ignored in the previous financial literature. However, in recent research a move towards relying on Hofstede's (1980 and 1991) work is apparent,<sup>3</sup> since his approach to measuring cultural differences among countries is comprehensive and persuasive ([www.geert-hofstede.com](http://www.geert-hofstede.com)). Kirkman et al. (2006) argue that researchers implement Hofstede's framework to select countries that are maximally different in cultural values and in the mostly cases to obtain sufficient variance among countries from the cultural point of view to conduct meaningful studies. Hofstede's cultural indices are generally implemented to analyse the structural differences across countries, but they can also be utilized to gain insights into more specific issues, such as understanding managers' behaviour across countries. Chang and Noorbakhsh (2009) find that cultural traits beyond corporate governance and legal systems affect managers' perception of the firm. They show that economic agents are heavily influenced by their own beliefs, religions, and cultural backgrounds. Therefore, cultural factors can influence the behaviour of managers and reflect their final outcomes, such as financial decisions.

The *masculinity* dimension of Hofstede's index measures the preference for gender role distinctions to be made between men and women in a particular culture. *Masculinity* stands for

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<sup>3</sup> According to Hofstede, culture is a collective programming of the mind that distinguishes the members of one group or category of people from another. He encounters four basic problem areas represented as dimensions of cultures: power distance, collectivism versus individualism, femininity versus masculinity, and uncertainty avoidance. Hofstede surveys data about the values of people in over 50 countries around the world. These people work in the local subsidiaries of one large multinational corporation, IBM. Following the statistical analysis of the answers, he reveals that IBM employees in different countries have common problems but that the solutions differ from country to country.



a preference in society for achievement, heroism, and assertiveness. Conversely, *femininity* stands for a preference for relationships, modesty, carrying of the weak, and the quality of life. High-masculinity societies strive for the maximum social distinction between males and females, while low-masculinity societies strive for the minimum social distinction between them. Consequently, it makes sense to think that in environments with high masculinity and, therefore, a high level of social discrimination between males and females, the latter might start to underestimate their skills, knowledge, and experiences and might consider themselves to be incapable of handling difficult situations. Such circumstances might make females more conservative and less overconfident; that is, females' confidence level might be lower in high-masculinity countries in comparison with low-masculinity countries. Females might feel more uncomfortable, shy, and less overconfident in masculine countries since they might be considered too 'feminine' to perform well in male-dominated areas. In other words, it can be implied that it is possible that females, who are more conservative and less overconfident, may prefer short-term debt even more in high-masculinity societies to preserve the debt capacity to deal with future unexpected events.

Therefore, we infer that female executives in high-masculinity (low-femininity) countries might give more preference to a flexible financing policy than their male counterparts, whereas this difference is expected to become weaker in low-masculinity (high-femininity) countries. Thus, we hypothesize:

*Hypothesis 2: Firms managed by female executives tend to have more short-term debt, particularly in the case of high-masculinity countries.*

## **1.3 Research Design**

### *1.3.1 Data*

This empirical study on the relationship between gender diversity on a management team and debt maturity is carried out using the Amadeus database by Bureau Van Dijk. This database provides financial information (i.e. financial statements, ratios, and activities) and information on managers and ownership structure for both listed and unlisted companies<sup>4</sup> in

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<sup>4</sup> Since unlisted companies make a major contribution to the economic growth of all the EU member states, and a large proportion of firms in Europe are unlisted, it is appropriate to include unlisted companies along with listed ones to increase the representativeness of the study.

Europe. Currently, Europe plays a leading role in gender equality, especially in decisive job positions, politics, and management boards. For this reason, studying gender roles and how they can affect firms' decisions in the context of the EU can be interesting. The sample of the study is unbalanced panel data that embrace listed and unlisted firms in European countries during the period 2005–2008. The choice of this time is aimed at avoiding the influence of the global financial crisis on the relationship between the gender diversity in management and the debt maturity choice of firms. We restrict our sample to non-financial firms. In addition, we discard any firm-year observations in which the information on the variables of interest for the analysis is missing. The final sample consists of 10,105 firm-year observations representing 3,755 unique firms. To deal with missing values of accounting control variables and to avoid eliminating several firms, we replace missing information with the ninety-ninth percentile. All the continuous variables are winsorized at the first and ninety-ninth percentiles to limit the influence of outliers and data coding errors.

### 1.3.2 Main variables

Concerning the variables used in the empirical model aimed to study the impact of executive gender on the debt maturity choice, Table 1 shows all the definitions.

\*\*\*\*\* Insert Table 1 Here \*\*\*\*\*

The dependent variable to be analysed is the debt maturity choice of the firm. To measure it, we consider short-term debt (*ST Debt*). This is defined as the ratio of short-term financial debt to total assets (Demirgüç-Kunt & Maksimovic, 1999).

Four variables are used as proxies for gender diversity in management. We extend our examination of the management group to include not only the higher-ranking executives who set the corporate strategy and policies but also the managers who implement these policies, namely middle management, department managers, and salaried supervisors. In fact, the interest lies in those who could be said to be in a strategic position (Pettigrew, 1992). The first variable is the *Percentage of Female Executives* from all the levels of management. This variable is calculated as the number of female executives divided by the total number of executives in a firm (Dezsö & Ross, 2012). The second proxy is a *Female Executives Dummy* variable that takes the value of 1 if at least one female executive is present in the firm and 0 otherwise (Dezsö & Ross, 2012). The third measure of gender diversity is *Female CEO*

*Dummy*, which is equal to 1 when there is a female CEO in the firm and 0 otherwise (Khan & Vieito, 2013). The last proxy is *Female CEO/CFO Dummy*, which is equal to 1 when there is either a female CEO or a female CFO in the firm and 0 otherwise (Huang & Kisgen, 2013).

Additionally, we use several control variables in relation to the previous literature (Barclay & Smith, 1995; Stohs & Mauer, 1996; Titman & Wessels, 1988; Demirgüç-Kunt & Maksimovic, 1999, Huang & Kisgen, 2013). We include *Firm Size* (Stohs & Mauer, 1996), calculated as the natural logarithm of total assets. *Firm Age* (Ben-David et al., 2007) is calculated as the natural logarithm of the number of years since the foundation of the firm. *Debt* (Ben-David et al., 2007) is calculated as the ratio of total financial debt to total assets. *Performance* (Barros & Silveira, 2008) is measured as the ratio of EBIT to total assets. *Cash Holdings* (Almeida et al., 2012) are calculated as the ratio of cash stock to total assets. *Growth Opportunities* are measured as the percentage variation in intangible assets from year t-1 to year t. Titman & Wessels (1988) use R&D expenses, which generally constitute the principal intangible assets, as a proxy for growth opportunities; having no available data on expenditure on R&D, we therefore consider the percentage change of intangible assets. *Tangibility* (Korner, 2007) is calculated as the ratio of tangible assets to total assets. *Capex* (Brick & Liao, 2016) is the percentage variation of capital expenditure on tangible assets. *Z-Score Dummy* (Brockman et al., 2010) is a dummy equal to 1 if the Z-score is higher than 1.81 (a conservative distress cut-off value) and 0 otherwise, and it is supposed to capture the financial quality (or credit quality) of the firms, providing a measure of the likelihood of bankruptcy. The Z-score is defined as in Altman (2000):  $Z = 0.717 (\text{net working capital}/\text{total assets}) + 0.847 (\text{retained earnings}/\text{total assets}) + 3.107 (\text{earnings before interest and taxes}/\text{total assets}) + 0.420 (\text{book value of equity}/\text{book value of liabilities}) + 0.998 (\text{net sales}/\text{total assets})$ . *Ownership* (Arslan & Karan, 2006) is defined as the direct and indirect ownership of the three largest shareholders. *Interest Coverage* (Brockman et al., 2010) is measured as the ratio of earnings before interest, tax, depreciation and amortization (EBITDA) to interest paid by the firm. Finally, to control for time effects, we use *Year Dummies*, one for each year of analysis for the period 2005–2008.

To test our second hypothesis, we need to consider the country-level score of the *Masculinity Index* (Hofstede, 1980). In the context of attitude surveys of more than 116,000 predominantly male IBM employees, Hofstede (1980, 1991) establishes national differences in cultural masculinity, reflected in different degrees of male role distinctiveness. The masculinity dimension measures the preferences for gender role distinctions to be made between men and women in a particular country's culture. On the one hand, a culture featuring masculinity refers to a society in which the gender roles are clearly distinct; in particular, men

are supposed to be assertive, tough, and focused on material success, and women are supposed to be more modest, tender, and concerned with the quality of life. On the other hand, a culture featuring femininity is a society in which the gender roles overlap socially; in other words, both men and women are supposed to be modest, tender, and concerned with the quality of life. The raw data for the *Masculinity Index* were collected between 1967 and 1973, but although there was some increase in masculinity over time in most countries, the cross-national differences in masculinity were quite stable Hofstede (1980), so we can be confident in using this indicator. The value of the *Masculinity Index* that we use to discriminate between high and low indexes, and with which we generate the sub-samples to test our second hypothesis, is 60. We selected this value of the index on the basis that this index ranges between 0 and 100. To consider the impact of high-masculinity cultures only, consistently with the suggestion by Hofstede (1991), we use the value of 60 for this index.

### 1.3.3 Methodology

This study is conducted to analyse the role of female representation in management team in shaping the nature of the debt maturity choice of the firm using a basic model along with moderating variable.

$$\text{Debt-Maturity} = f(\text{Gender, Control Variables, Moderator})$$

The problem of endogeneity is a big concern in the study of gender issues. For example, the possibility of having a female executive may be related to some unobservable factors that can be part of the error term. In addition, the reverse-causality problem could make the interpretation of the results difficult. To mitigate these problems, two-stage least squares (2SLS) regression is employed as the method of estimation in this study. Specifically, we estimate the following 2SLS model:

#### First stage:

$$\text{Female}_{i,t} = \alpha_0 + \alpha_1 \text{Country \% Female LT Unemployment}_{j,t} + \alpha_2 \text{Country \% Female Entrepreneurs}_{j,t} + \phi X_{i,t} + \gamma_i + \tau_t + \mu_{i,t}$$

#### Second stage:

$$ST\ Debt_{i,t} = \beta_0 + \beta_1 Instrumented\ Female_{it} + \theta X_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

In the above model, firms are represented by  $i$ , the country by  $j$ , and the time by  $t$ .  $ST\ Debt_{i,t}$  is the short-term debt of firm  $i$  in year  $t$ .  $Female_{i,t}$  can be any of the following proxies of firm  $i$  in year  $t$ : *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, and *Female CEO/CFO Dummy*.  $Instrumented\ Female_{i,t}$  is the fitted value of the *Female* indicator from the first-stage regression for each firm  $i$  in year  $t$ .  $X_{i,t}$  is the set of control variables for each firm  $i$  in year  $t$ , namely *Firm Size*, *Firm Age*, *Debt*, *Performance*, *Cash Holdings*, *Growth Opportunities*, *Tangibility*, *Capex*, *Z-Score Dummy*, *Ownership*, and *Interest Coverage*, as explained above.  $\gamma_i$  controls for firm fixed effects<sup>5</sup>; that is, it captures various unobservable characteristics that differ across firms but are constant over time for a given firm and that can have a significant impact on debt maturity decisions.  $\tau_t$  controls for time fixed effects, which are the same for all firms at a given point in time but vary through time (basically they are represented by the *Year Dummies*); for example, there could be many macro-economic factors to consider, such as inflation, interest rates, and so on.  $\mu_{i,t}$  is the error term of the first-stage regression, while  $\varepsilon_{i,t}$  is the error term of the second-stage regression model.

To address the potential issue of endogeneity, we use two instrumental variables that are expected to be unrelated to the dependent variable of our study but highly correlated with a female presence on the management team. It is generally difficult to find valid instrumental variables in the context of corporate governance, and it is even more problematic to find a ‘good’ instrument that is correlated with the presence of women on the management team but not with financial indicators to be compliant with the exclusion restriction.<sup>6</sup> Therefore, as instrumental variables, we use two country-level variables,<sup>7</sup> namely the percentage of female long-term unemployment (*Country % Female LT Unemployment*) and the proportion of female entrepreneurs (*Country % Female Entrepreneurs*).  $Country\ \% \ Female\ LT\ Unemployment_{j,t}$  and  $Country\ \% \ Female\ Entrepreneurs_{j,t}$  are country-level time-variant variables provided by the World Bank, the first of which is defined as the percentage of females’ long-term

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<sup>5</sup> We include both industry and country fixed effects, which is why we do not insert any dummies relating to these aspects into the model.

<sup>6</sup> In the context of governance empirical analysis, it is usually difficult to come up with valid instruments, because the factors that are arguably the most correlated with the endogenous variable are other governance characteristics that are already (or should be) included in the regressions as control variables.

<sup>7</sup> Since both our instruments are measured at the country level, a potential concern is that there could be variation across countries that may be correlated with the proportion of female executives. We deal with this issue by controlling in our regressions for firm-level fixed effects, which in turn include country fixed effects.

unemployment of the total unemployed in country  $j$  in year  $t$  and the second of which is defined as the percentage of female entrepreneurs of the total entrepreneurs in country  $j$  in year  $t$ . The percentage of female long-term unemployment indicates the lack of support, opportunities, and recognition of females as human resource capital, so countries with a high score for female long-term unemployment may be less likely to have female executives. Conversely, a greater percentage of female entrepreneurs in a country works as an inspirational factor to make the work environment more hospitable for women of that country; hence, countries with a higher proportion of female entrepreneurs may have more possibility to have more female executives. Moreover, for both variables there is no theoretical reason to believe that they can influence the firm debt maturity, so they can be considered, in principle, to be good instrumental variables. The assumptions about the appropriateness of the instruments will be tested properly later.

#### 1.4 Descriptive Statistics

Table 2 presents the descriptive statistics.

\*\*\*\*\* Insert Table 2 Here \*\*\*\*\*

The short-term debt is on average 0.073. The average proportion of female executives in a firm is around 3.6%, while 8.2% of the firm-year observations have one or more female executives. Moreover, 3.4% of the firm-year observations have either a female CEO or a female CFO, while 2.1% of the firm-year observations are managed by a female CEO.

Table 3 represents the correlation matrix for the variables defined above.

\*\*\*\*\* Insert Table 3 Here \*\*\*\*\*

The correlation matrix shows that the gender diversity variables are almost all significantly correlated with short-term debt. This suggests that female executives' presence can be associated with an increase in firms' short-term debt financing. With regard to the multicollinearity problem, we also perform a VIF test and find that our analysis is not threatened by this type of problem.

The list of countries under analysis, according to the value of the *Masculinity Index* that we use to discriminate between countries with high and low levels of masculinity, is presented in Table 4.

\*\*\*\*\* Insert Table 4 Here \*\*\*\*\*

Countries such as Austria and Switzerland are quite masculine; moreover, in the Anglo world, the masculinity scores are relatively high (Ireland and United Kingdom). At the far end, towards the feminine side, we find the four Scandinavian countries (Denmark, Finland, Norway, and Sweden). Finally, Latin countries present contrasting scores, since some of them, like France, Portugal, and Spain, are moderately feminine, while Italy is a masculine country.

Finally, Table 5 represents the T-test method that is applied to examine whether companies with and without female executives are equal in terms of the average value of the dependent variable (i.e. short-term debt) and of the continuous control variables (*Firm Age*, *Firm Size*, *Debt*, *Performance*, *Cash Holdings*, *Growth Opportunities*, *Tangibility*, *Capex*, *Ownership*, and *Interest Coverage*), considering the full sample (Panel A) and the sub-samples created depending on the value of the *Masculinity Index* that we use to discriminate between high and low levels of masculinity in the countries (Panels B and C).

\*\*\*\*\* Insert Table 5 Here \*\*\*\*\*

Table 5 reports that, between the couple of sub-samples of company observations, the T-test comparison is always statistically significant for the short-term debt variable. This suggests that there may be a link between short-term debt and female executives' presence. However, the table shows that in general terms, between the couple of sub-samples, there are several statistically significant differences in the continuous control variables. For example, in Panel A firms run by female executives tend to be older but more profitable. In addition, firms run by female executives tend to have fewer growth opportunities. Finally, these firms have a more concentrated ownership structure.

## 1.5 Results

### 1.5.1 Main analysis

In this section, we report the main results of the regression analysis using the 2SLS model. For all the regressions' output, we report the second-stage regression, but the first one is available on request. The independent variables *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, and *Female CEO/CFO Dummy*, used alternatively, are the fitted values of the female indicator from the first-stage regression.

In Table 6 we present the result for the main effect of gender diversity on the management team (i.e. the presence of female executives) on short-term debt.

\*\*\*\*\* Insert Table 6 Here \*\*\*\*\*

As stated above, for an instrumental variable to be valid, it must satisfy both exogeneity and identification assumptions; that is, it must not be correlated with the residual term and at the same time can explain the variation in the endogenous variable (female presence on the management team). If we assume that our instrumental variables are valid, we can conclude that the 2SLS/FE results are reliable, as they control for both unobserved heterogeneity and endogeneity. The F-tests in the first-stage regression show that our instruments are always jointly significant in predicting the presence of women on the management team. However, since the two instruments are highly positively correlated (Pearson correlation = 0.72), when put together in the same regression, they lose statistical significance compared with what would happen using these instrumental variables individually. Conversely, using the instruments individually does not allow the testing of the exogeneity of the same through an over-identification test (Wooldridge, 2008). In addition, the economic impact of both instrumental variables on female representation in management is substantial. For example, an increase of 1 percentage point in *Country % Female Entrepreneurs* leads to an increase of around 3 points in *Percentage of Female Executives*. Clearly, this number is significant considering that the average fraction of women on the management team is about 4%. Thus, our instrumental variables pass the relevance criterion. On the contrary, there is no reason why *Country % Female LT Unemployment* and *Country % Female Entrepreneurs* should directly affect firms' short-term debt. In fact, we always obtain a statistically non-significant Sargan–Hansen



statistic, which points to their validity. Therefore, these instruments plausibly satisfy the exclusion criterion.

In the second-stage regression reported in columns 1–4, the results indicate that the coefficients of the fitted value of *Percentage of Female Executives*, *Female Executive Dummy*, *Female CEO Dummy*, and *Female CEO/CFO Dummy* are positive and statistically significant at least at the 5% level. This implies that female executives seem to have a positive influence on the short-term debt of the firm. Therefore, *Hypothesis 1* is corroborated, implying lower overconfidence of female managers. In fact, the findings can be interpreted in the light of the statement made by Myers (1977), who documents that short-term debt provides continuous and gradual renegotiation as well as the flexibility to modify the corporate capital structure easily, and in the light of the view of Ben-David et al. (2007), who find a positive relationship between managerial overconfidence and firm' long-term debt. The lower the overconfidence of managers, as in the case of women, the higher the required flexibility of the capital structure will be in comparison with male manager peers.

Next, we want to investigate whether culture is associated with the basic relationship just considered. In particular, Hofstede's measures of national culture might partially explain the 'geographical' patterns of managerial overconfidence. As Hofstede's masculinity dimension captures the extent to which gender roles are polarized and magnified, we expect that, in countries where masculine values are emphasized, female managers will even have a tendency to be particularly overconfident. In fact, women in masculine countries might not be as assertive and competitive as men, so these countries might show a significant gap between men and women in terms of behaviour, even in the managerial context. Therefore, Table 7 presents the results of the regression analysis of the sub-samples of high- and low-masculinity countries.

\*\*\*\*\* Insert Table 7 Here \*\*\*\*\*

From the first-stage regression (not tabulated), it is evident that our two instruments continue to be significantly jointly correlated with the gender diversity proxies. The F-test value indicates that the instrumental model predicts the presence of female executives in team management, with the same considerations made for the analysis in Table 6. Hence, these instruments are not too weak for valid inference and can satisfy the relevance criterion. More importantly, these instruments also plausibly satisfy the exclusion restriction again. Under the

assumption of the instruments' validity, we reject the hypothesis that they are correlated with the error term, according to the Sargan–Hansen test.

For high-masculinity countries (columns 1–4), the effect of female proxies on short-term debt is positive and overall statistically significant mostly at the 10% level. Conversely, the coefficient values of female executives' presence are not statistically significant in all the regressions for low-masculinity (high-femininity) countries (columns 5–8). Thus, *Hypothesis 2* is validated. Females' level of overconfidence seems to be lower than that of their male counterparts in high-masculinity countries, where there is maximum social role differentiation between males and females. Conversely, females' level of overconfidence seems to improve in feminine societies, where they have equal options, opportunities, and rights to men, in light of the fact that gender diversity on the management team does not seem to affect the debt maturity policies in such contexts. Thus, in high-masculinity societies, female executives will be more conservative and less overconfident than males and will prefer to have financial flexibility in their capital structure (i.e. more short-term debt) to deal better with future unexpected business events. The findings are consistent with those of Chang et al. (2012), who suggest that the national culture is able to influence economic participants, such as corporate managers. The Chow test reported at the bottom of Table 7 is based on the difference between the coefficients of every gender diversity proxy in the two sub-samples, and it is always significant at conventional levels.

Thus, in these main analyses, both our hypotheses seem to be corroborated. However, the comparison between firms with and firms without female executives presented in Table 5 makes the issue of non-random selection immediately apparent. To mitigate sample selection concerns in the comparison of firms with and without female executives, in the following subsection we conduct two robustness tests: (1) a T-test mean comparison between firms with and without female executives after propensity score matching; and (2) a T-test mean comparison for transition firms after propensity score matching.

### *1.5.2 Robustness checks*

We begin our robustness checks of the differences in debt maturity policy between firms with and without female executives by employing a propensity score-matching procedure (Rosenbaum & Rubin, 1983). This methodology permits us to identify a control sample of firms that are run only by male executives and that display no noticeable differences in characteristics relative to the firms run also by female executives. We consider a matching

method that first defines a subset of potential ‘control’ observations that are close to the ‘treated’ observations on the propensity score and then selects the ‘control’ firms from this subset by using 1:1 matching with replacement (Rosenbaum, 2002), which allows a given untreated observation to be included in more than one matched set. Matching on observable firm characteristics alleviates the concerns related to non-random selection. To implement this methodology, we primarily compute the probability (i.e. the propensity score) that a firm with the specified characteristics is run by at least a female executive. We calculate this probability as a logit function of firm-level characteristics (i.e. the control variables used in the previous regression model) within each country–industry–year category. To ensure that the firms in the control sample are sufficiently similar to the firms run by female executives, we require that the maximum difference between the propensity score of the firm run by female executives and that of its matched peer does not exceed 0.1% in absolute values (i.e. within a ‘caliper’, a pre-specified amount), according to Althausser and Rubin (1971), excluding the observations that do not meet these criteria. The common support constraint is imposed to eliminate observations for which we cannot find sufficient number of comparable pairs to avoid noise in the estimates. Following Heckman, et al. (1997), and Smith & Todd (2005), we impose the common support constraint by dropping treatment observations with a propensity score that is higher than the maximum or lower than the minimum propensity score of the controls. Table 8 shows the T-test mean comparison between firms with and without female executives after the propensity score-matching procedure.

\*\*\*\*\* Insert Table 8 Here \*\*\*\*\*

A comparison of short-term debt between the matched firms, without distinguishing companies according to countries of provenance, reveals that firms with female executives tend to have a more flexible financial structure than firms with no female executives, even when several other observable characteristics between the firm pairs are virtually identical. The results in Panel A show that the average short-term debt of firms run by female executives is 10.5%, compared with 7.9% for otherwise similar firms run only by male executives, and the differences in flexibility of the capital structure between the two groups is statistically significant, with p-values of less than 0.001. Importantly, these results suggest that the gender-related differences in short-term debt observed in Table 5 are not due to observable differences in firm characteristics. In Panel B, we again match firms within a country–industry–year category but consider only the sub-sample of firms from countries with a high masculinity

score. Even with this matching, our conclusions remain unchanged. However, according to Panel C, there are no significant differences in the debt maturity policy between the matched samples in the case of the sub-sample of firms from countries with low masculinity. Overall, the robustness tests in Table 8 thus agree with the main analysis.

Another specific concern is that our main analysis is not sufficient to address the selection issue. Therefore, we focus our attention on the cases in which there are transitions from male to female executives to compare the debt maturity policies of the same firms as run by executives of different genders. To address this concern better, in Table 9 we present a propensity score analysis of the firms experiencing a transition from male to female executives, using a procedure similar to that of Faccio et al. (2016). In particular, we compare the change in the use of short-term debt around shifts from male to female executives with the change in the use of short-term debt of matched firms that are run only by male executives throughout the full sample period. The matching procedure is similar to that used in Table 8.

\*\*\*\*\* Insert Table 9 Here \*\*\*\*\*

Panel A shows the result for all the firms, regardless of their country of origin. We find that transition firms on average experience an increase in short-term debt from an average of 0.074 (under male executives) to an average of 0.109 (with the arrival of female executives). This change is statistically significant with a p-value of less than 0.001. By contrast, the short-term debt of comparable firms that were always run only by male executives does not change significantly throughout the identical time period. The difference between the change in short-term debt of the transition firms and that of the control group is statistically significant, with a p-value of less than 0.001. We obtain similar conclusions in Panel B, when we look at the sub-sample of firms from countries with a high masculinity score, but not in Panel C, in which we consider the sub-sample of firms from countries with low masculinity, since in this last case the transition from male to female executives does not produce a priori statistically significant changes in debt maturity policies. Those tests indicate that gender executive transitions are generally associated with changes in debt maturity policies over and beyond what is observed among otherwise identical peers; in particular, transitions from male to female executives are associated with an increase in the use of short-term debt. While we again acknowledge that executive gender might not be assigned randomly, these results provide evidence of changes in debt maturity policies around gender executives' transitions, in countries with a high level of masculinity.

Overall, our main results document a statistically significant association between executive gender and debt maturity policies, and the propensity score approach, as a robustness analysis, helps to mitigate concerns about omitted variables and shows that the differences observed between firms run by male and female executives are not purely cross-sectional.

## **1.6 Conclusion**

The amount of research on gender diversity has been increasing in recent years. Gender is a well-researched topic in psychology, sociology, biology, and other fields. However, the study of gender diversity has also become particularly important in business research, since the systematic behavioural differences between males and females can reflect not only their private life decisions but their professional ones as well. Several papers indicate differences in the way in which men and women run businesses and the influence of gender diversity in working groups. Most of these studies examine the influence of gender diversity on firm value or firm risk. Only recently has a stream of research arisen concerning the influence of women on corporate financial decisions.

In this chapter, we examine the empirical relationship between the gender of executives and the debt maturity choice of listed and unlisted European firms during the period 2005–2008. By accounting for managerial characteristics, namely the gender of executives, our analysis improves the understanding of debt maturity drivers. Traditional analyses in corporate finance investigate financial policies, and in particular, the debt maturity choice, in terms of market-, industry-, and firm-level determinants. Our results reveal that it is equally important to consider the possible behavioural biases of executives in the firms.

Our output supports the idea that corporate finance should not focus only on firm characteristics, ignoring important factors such as gender diversity on the management team, to explain firm behaviour, according to the behavioural finance theories that strongly support the argument that the degree of overconfidence of managers can significantly affect the financing decisions of the firms. For this reason, this study extends the literature on the debt maturity structure by suggesting a new determinant of firm's debt maturity choices. It contributes to filling the gap between the classical corporate finance literature and the behavioural finance literature.

The results can be summarized as follows. We find that firms managed by female executives tend to have more short-term debt. Moreover, this relationship between executives'

gender and debt maturity choice is influenced by the cultural dimension of the country in which the company is located. Firms managed by female executives seem to have a higher level of short-term debt in countries with a high masculinity score, according to Hofstede's classification. Further tests indicate that, controlling for self-selection, female executives tend to act differently, at least in a masculine context, from their male counterparts.

Our results corroborate that differences in individuals' personal characteristics and psychological nature associated with females in comparison with males, affecting the rationality at the core of management's corporate decisions, strongly influence debt maturity. According to the behavioural theory, we conclude that females are less overconfident, placing greater emphasis on probable losses than potential gains and thus showing themselves to be reluctant to engage in long-term debt relationships. The option to shift to different financial contracts in the case of negative contingencies, without being forced to remain in long-term contracts, seems to be particularly appreciated by women.

This lack of confidence is strongly determined by sociocultural factors operating at the country level. The positive effect of gender on debt maturity is shown to be shaped strongly by the country culture. Women who climb the corporate ladder are different from their male peers if the cultural context favours such differences. This effect is closely linked to the national cultural context in which the company is located, considered as one of the vital dimensions that distinguish firms' behaviour from one country to another. The empirical evidence is consistent with females being less overconfident and more conservative than males (Rosener, 1995) given that female executives seem to prefer a more flexible financial structure, which leads to greater ease of managing ambiguous situations, but mainly if the cultural context tends to mark the role differences between men and women.

In future research in this direction, it will be interesting to disentangle the reason for this minor overconfidence and determine whether it is just based on a lack of confidence or generated by a lack of financial knowledge. A lack of financial knowledge refers to the assumption that individuals who have less knowledge about the functioning of financial economics tend to avoid long-term relationships. In general, it would be noteworthy in future research to consider other characteristics of managers, such as age, education, experience, and so on, that can play a role in corporate finance decisions and in particular in the debt maturity choice of the firms.

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## Tables

**Table 1 - Variables definitions**

The Table reports the variables definitions as well as authors in the literature that have used these proxies. All firm-level variables are from Amadeus, while country-level variables are from World Bank, except the cultural variables that come from Hofstede (1980 and 1991).

| Name                             | Description   | Authors                            |
|----------------------------------|---|------------------------------------|
| ST Debt                          | It is the ratio between short-term financial debt and total assets  | (Demirgüç-Kunt & Maksimovic, 1999) |
| Percentage of Female Executives  | It is the percentage of female executives with respect to total executives in the firm  | (Dezsö & Ross, 2012)               |
| Female Executives Dummy          | It is a dummy equal to 1 if percentage of female executives > 0, and 0 otherwise  | (Dezsö & Ross, 2012)               |
| Female CEO Dummy                 | It is a dummy equal to 1 if the CEO is a female, and 0 otherwise  | (Khan & Vieito, 2013)              |
| Female CEO/CFO Dummy             | It is a dummy equal to 1 if the CEO or the CFO is a female, and 0 otherwise   | (Huang & Kisgen, 2013)             |
| Firm Age                         | It is the natural logarithm of the number of years since the year of foundation of a firm plus one  | (Ben-David, et al. 2007)           |
| Firm Size                        | It is the natural logarithm of total assets   | (Fan et al. 2012)                  |
| Debt                             | It is the ratio between financial debt and total assets   | (Ben-David et al. 2007)            |
| Performance                      | It is the ratio between EBIT and total assets (ROA)   | (Barros & Da Silveira, 2008)       |
| Cash Holdings                    | It is the ratio between cash stock and total assets   | (Almeida et al. 2012)              |
| Tangibility                      | It is the ratio between tangible assets and total assets  | (Campello & Giambona, 2013)        |
| Growth Opportunities             | It is equal to the following formula: (intangible fixed assets (t) – intangible fixed assets (t-1)) / intangible fixed assets (t-1)   | (Titman & Wessels, 1988)           |
| Capex                            | It equals to the following formula: (tangible fixed assets (t) – tangible fixed assets (t-1) + depreciation (t)) / tangible fixed assets (t-1)  | (Brick & Liao, 2016)               |
| Z-Score Dummy                    | It is a dummy equal to 1 if Z-Score > than 1.81 (a conservative distress cut-off value), and 0 otherwise; Z-Score is calculated with the following formula: $0.717*T1 + 0.847*T2 + 3.107*T3 + 0.420*T4 + 0.998*T5$ where T1 = net working capital/total assets, T2 = retained earnings/total assets, T3 = (EBIT/total assets), T4 = (equity/total liabilities), T5 = (net sales/total assets) | (Brockman et al. 2010)             |
| Ownership                        | It is the percentage of direct and indirect ownership of the first three largest shareholders   | (Arslan & Karan, 2006)             |
| Interest Coverage                | It is the ratio between EBITDA and interest paid  | (Brockman et al. 2010)             |
| Year Dummies                     | They are dummy variables for each year of analysis for the period 2005-2008   |                                    |
| Country % Female LT Unemployment | It is the country-level percentage of female long-term unemployment of total unemployed, referring to periods of unemployment extending for a year or longer  |                                    |
| Country % Female Entrepreneurs   | It is the country-level percentage of female entrepreneurs of the total entrepreneurs   |                                    |
| Masculinity Dummy                | It is a dummy equal to 1 if Masculinity index > 60, and 0 otherwise. In the context of attitude surveys of more than 116,000 predominantly male IBM employees, Hofstede (1980, 1991) established national differences in cultural masculinity, reflected in different degrees of male role distinctiveness; the raw data for the masculinity index were collected between 1967 and 1973       | (Hofstede, 1991)                   |

**Table 2 - Descriptive statistics**

The Table reports descriptive statistics for continuous and dummy variables used in the empirical analysis. All the variables are defined in Table 1.

**Panel A: Continuous variables**

| Variables                        | Observations | Mean   | Median | SD      | Min    | Max     |
|----------------------------------|--------------|--------|--------|---------|--------|---------|
| ST Debt                          | 10,105       | 0.073  | 0.026  | 0.110   | 0.000  | 0.492   |
| Percentage of Female Executives  | 10,105       | 0.036  | 0.000  | 0.148   | 0.000  | 1.000   |
| Firm Age (in years)              | 10,105       | 33.630 | 19.000 | 35.980  | 2.000  | 149.000 |
| Firm Size (in millions €)        | 10,105       | 1,251  | 76.370 | 4,584   | 1.133  | 35,124  |
| Debt                             | 10,105       | 0.229  | 0.171  | 0.227   | 0.000  | 0.824   |
| Performance                      | 10,105       | 0.007  | 0.050  | 0.218   | -1.250 | 0.349   |
| Cash Holdings                    | 10,105       | 0.144  | 0.080  | 0.174   | 0.000  | 0.783   |
| Tangibility                      | 10,105       | 0.236  | 0.154  | 0.237   | 0.000  | 0.922   |
| Growth Opportunities             | 10,105       | 0.174  | 0.083  | 0.207   | 0.000  | 0.803   |
| Capex                            | 10,105       | 1.756  | 0.300  | 6.470   | -0.792 | 53.620  |
| Z-Score (continuous format)      | 10,105       | 1.744  | 1.641  | 3.510   | -4.071 | 8.649   |
| Ownership                        | 10,105       | 0.342  | 0.228  | 0.314   | 0.002  | 1.000   |
| Interest Coverage                | 10,105       | 24.840 | 7.328  | 104.500 | -722   | 167.600 |
| Country % Female LT Unemployment | 10,105       | 31.160 | 22.900 | 17.490  | 5.800  | 72.300  |
| Country % Female Entrepreneurs   | 10,105       | 2.139  | 1.900  | 0.860   | 0.900  | 4.300   |

**Panel B: Dummy Variables**

| Variables               | Observation | Percentage frequencies |
|-------------------------|-------------|------------------------|
| Female Executives Dummy | 10,105      | 8.17%                  |
| Female CEO/CFO Dummy    | 10,105      | 3.35%                  |
| Female CEO Dummy        | 10,105      | 2.14%                  |

**Table 3 - Correlation matrix**

This Table reports the correlation coefficients of the variables used in the second stage of the model. All variables are defined in Table 1. The \* mark denotes statistical significance at 10% level.

| Variables                         | 1      | 2     | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13    | 14    | 15   | 16   |
|-----------------------------------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|------|------|
| 1 ST Debt                         | 1      |       |        |        |        |        |        |        |        |        |        |        |       |       |      |      |
| 2 Percentage of Female Executives | 0.04*  | 1     |        |        |        |        |        |        |        |        |        |        |       |       |      |      |
| 3 Female Executives Dummy         | 0.09*  | 0.81* | 1      |        |        |        |        |        |        |        |        |        |       |       |      |      |
| 4 Female CEO Dummy                | 0.02   | 0.59* | 0.49*  | 1      |        |        |        |        |        |        |        |        |       |       |      |      |
| 5 Female CEO/CFO Dummy            | 0.05*  | 0.67* | 0.62*  | 0.79*  | 1      |        |        |        |        |        |        |        |       |       |      |      |
| 6 Firm Age                        | 0.07*  | 0.00  | 0.03   | 0.02   | 0.02   | 1      |        |        |        |        |        |        |       |       |      |      |
| 7 Firm Size                       | -0.04* | -0.04 | -0.01  | -0.04* | -0.03  | 0.29*  | 1      |        |        |        |        |        |       |       |      |      |
| 8 Debt                            | 0.52*  | 0.02  | 0.05*  | 0.01   | 0.03   | -0.01  | 0.07*  | 1      |        |        |        |        |       |       |      |      |
| 9 Performance                     | -0.07* | 0.02  | 0.02   | 0.00   | 0.01   | 0.21*  | 0.35*  | -0.13* | 1      |        |        |        |       |       |      |      |
| 10 Cash Holdings                  | -0.17* | -0.00 | -0.04  | 0.01   | -0.00  | -0.19* | -0.25* | -0.12* | -0.16* | 1      |        |        |       |       |      |      |
| 11 Growth Opportunities           | -0.09* | -0.03 | -0.07* | -0.03  | -0.03  | -0.25* | -0.00  | -0.04  | -0.08* | -0.08* | 1      |        |       |       |      |      |
| 12 Tangibility                    | 0.07*  | 0.04* | 0.08*  | 0.01   | 0.02   | 0.20*  | 0.19*  | 0.16*  | 0.10*  | -0.29* | -0.39* | 1      |       |       |      |      |
| 13 Capex                          | -0.04  | -0.00 | -0.02  | -0.01  | -0.01  | -0.15* | -0.11* | 0.03   | -0.18* | 0.04   | 0.22*  | -0.16* | 1     |       |      |      |
| 14 Z-Score Dummy                  | -0.09* | -0.01 | -0.06* | -0.04* | -0.07* | -0.00  | -0.07* | -0.20* | 0.15*  | 0.09*  | -0.09* | -0.03  | -0.02 | 1     |      |      |
| 15 Ownership                      | 0.05*  | 0.03  | 0.04*  | 0.02   | 0.01   | 0.04*  | -0.21* | -0.02  | -0.00  | -0.06* | -0.15* | 0.12*  | -0.01 | 0.10* | 1    |      |
| 16 Interest Coverage              | -0.03  | 0.04* | 0.05*  | 0.02   | 0.02   | 0.04*  | -0.01  | -0.02  | 0.29*  | 0.01   | -0.04  | 0.00   | -0.03 | 0.09* | 0.04 | 1    |
| Max VIF                           |        | 3.55  | 3.19   | 2.79   | 3.40   | 1.23   | 1.41   | 1.11   | 1.39   | 1.25   | 1.38   | 1.41   | 1.09  | 1.11  | 1.11 | 1.12 |

**Table 4 - List of countries according to the level of *Masculinity* index**

| <b>Countries with high Masculinity index</b> | <b>Countries with low Masculinity index</b> |
|--|---|
| Austria                                      | Belgium                                     |
| Greece                                       | Denmark                                     |
| Ireland                                      | Finland                                     |
| Italy  | France                                      |
| Switzerland                                  | Germany                                     |
| United Kingdom                               | Norway                                      |
|  | Portugal                                    |
|  | Spain                                       |
|  | Sweden                                      |

**Table 5 – T-test mean comparison between firms with and without female executives**

The Table reports T-test mean comparisons for the continuous variables used in the empirical analysis between firms with and without female executives. All the variables are defined in Table 1.

| <b>Panel A: Full sample</b>   |  |   |                                      |               |                |
|---|--|---|--------------------------------------|---------------|----------------|
|   | <b>Firms without Female Executives<br/>(No. of observations=9,279)</b> | <b>Firms with Female Executives (No. of observations=826)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.070  | 0.106   | 0.036                                | 8.860         | 0.000          |
| Firm Age  | 3.053  | 3.161   | 0.108                                | 2.983         | 0.000          |
| Firm Size   | 11.508   | 11.387  | -0.121                               | -1.534        | 0.125          |
| Debt  | 0.225  | 0.266   | 0.041                                | 4.961         | 0.000          |
| Performance   | 0.005  | 0.027   | 0.022                                | 2.728         | 0.006          |
| Cash  | 0.146  | 0.123   | -0.023                               | -3.712        | 0.000          |
| Holdings  |  |   |                                      |               |                |
| Growth Opp.   | 0.178  | 0.123   | -0.055                               | -7.343        | 0.000          |
| Tangibility   | 0.230  | 0.303   | 0.073                                | 8.475         | 0.000          |
| Capex   | 1.795  | 1.324   | -0.471                               | -2.003        | 0.045          |
| Ownership   | 0.338  | 0.386   | 0.048                                | 4.226         | 0.000          |
| Interest Cov.   | 22.980   | 45.768  | 22.788                               | 6.017         | 0.000          |
| <b>Panel B: Sub-sample of countries with high Masculinity index</b> |  |   |                                      |               |                |
|   | <b>Firms without Female Executives<br/>(No. of observations=5,134)</b> | <b>Firms with Female Executives (No. of observations=496)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.081  | 0.131   | 0.050                                | 9.113         | 0.000          |
| Firm Age  | 2.976  | 3.239   | 0.263                                | 5.452         | 0.000          |
| Firm Size   | 11.550   | 11.516  | -0.034                               | -0.331        | 0.740          |
| Debt  | 0.260  | 0.316   | 0.056                                | 4.925         | 0.000          |
| Performance   | -0.006   | 0.029   | 0.035                                | 3.235         | 0.001          |
| Cash  | 0.146  | 0.098   | -0.048                               | -5.745        | 0.000          |
| Holdings  |  |   |                                      |               |                |
| Growth Opp.   | 0.195  | 0.101   | -0.094                               | -8.975        | 0.000          |
| Tangibility   | 0.249  | 0.341   | 0.092                                | 8.123         | 0.000          |
| Capex   | 1.655  | 0.642   | -1.013                               | -3.427        | 0.001          |
| Ownership   | 0.311  | 0.384   | 0.073                                | 5.488         | 0.000          |
| Interest Cov.   | 22.480   | 46.462  | 23.982                               | 4.797         | 0.000          |
| <b>Panel C: Sub-sample of countries with low Masculinity index</b>  |  |   |                                      |               |                |
|   | <b>Firms without Female Executives<br/>(No. of observations=4,145)</b> | <b>Firms with Female Executives (No. of observations=330)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.057  | 0.067   | 0.010                                | 1.772         | 0.076          |
| Firm Age  | 3.149  | 3.043   | -0.106                               | -1.945        | 0.052          |
| Firm Size   | 11.456   | 11.192  | -0.264                               | -2.114        | 0.035          |
| Debt  | 0.183  | 0.191   | 0.008                                | 0.787         | 0.432          |
| Performance   | 0.019  | 0.023   | 0.004                                | 0.387         | 0.699          |
| Cash  | 0.147  | 0.160   | 0.013                                | 1.410         | 0.159          |
| Holdings  |  |   |                                      |               |                |
| Growth Opp.   | 0.158  | 0.157   | -0.001                               | -0.144        | 0.885          |
| Tangibility   | 0.206  | 0.245   | 0.039                                | 2.965         | 0.003          |
| Capex   | 1.967  | 2.349   | 0.382                                | 1.000         | 0.317          |
| Ownership   | 0.370  | 0.389   | 0.019                                | 0.939         | 0.348          |
| Interest Cov.   | 23.599   | 44.725  | 21.126                               | 3.631         | 0.000          |

**Table 6 - Regression results of the effect of gender diversity in management team on firm debt-maturity for the full sample**

This Table shows the second stage of 2SLS regression results with short-term debt as dependent variable. The variables *Instrumented Percentage of Female Executives*, *Instrumented Female Executives Dummy*, *Instrumented Female CEO Dummy* and *Instrumented Female CEO/CFO Dummy* are the fitted values of female indicator from the first-stage regressions. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*), or 1% (\*\*\*) is indicated.

| Explanatory Variables                        | ST Debt              |                     |                      |                      |
|--|----------------------|---------------------|----------------------|----------------------|
|  | (1)                  | (2)                 | (3)                  | (4)                  |
| Instrumented Percentage of Female Executives | 0.775**<br>(0.010)   |                     |                      |                      |
| Instrumented Female Executives Dummy         |                      | 0.489**<br>(0.028)  |                      |                      |
| Instrumented Female CEO Dummy                |                      |                     | 0.596***<br>(0.010)  |                      |
| Instrumented Female CEO/CFO Dummy            |                      |                     |                      | 0.608**<br>(0.017)   |
| Firm Age                                     | 0.001<br>(0.946)     | -0.003<br>(0.899)   | 0.011<br>(0.553)     | -0.003<br>(0.910)    |
| Firm Size                                    | 0.008**<br>(0.041)   | 0.009**<br>(0.019)  | 0.008**<br>(0.011)   | 0.008**<br>(0.041)   |
| Debt   | 0.285***<br>(0.000)  | 0.292***<br>(0.000) | 0.294***<br>(0.000)  | 0.289***<br>(0.000)  |
| Performance                                  | -0.040***<br>(0.001) | -0.026**<br>(0.021) | -0.027***<br>(0.005) | -0.032***<br>(0.004) |
| Cash Holdings                                | -0.023*<br>(0.093)   | -0.024*<br>(0.093)  | -0.015<br>(0.169)    | -0.027*<br>(0.054)   |
| Growth Opportunities                         | -0.015<br>(0.407)    | -0.027<br>(0.178)   | -0.015<br>(0.327)    | -0.022<br>(0.237)    |
| Tangibility                                  | 0.004<br>(0.865)     | 0.011<br>(0.604)    | -0.004<br>(0.834)    | 0.008<br>(0.671)     |
| Capex  | -0.000<br>(0.297)    | -0.000<br>(0.475)   | -0.000<br>(0.816)    | 0.000<br>(0.954)     |
| Z-Score Dummy                                | 0.006<br>(0.220)     | 0.006<br>(0.207)    | 0.008*<br>(0.063)    | 0.007<br>(0.141)     |
| Ownership                                    | 0.009<br>(0.121)     | 0.008<br>(0.193)    | 0.003<br>(0.572)     | 0.006<br>(0.268)     |
| Interest coverage                            | -0.000<br>(0.239)    | -0.000<br>(0.225)   | -0.000<br>(0.400)    | -0.000<br>(0.667)    |
| Firm Fixed Effects                           | Yes                  | Yes                 | Yes                  | Yes                  |
| Time Fixed Effects                           | Yes                  | Yes                 | Yes                  | Yes                  |
| R-Squared                                    | 0.087                | 0.091               | 0.109                | 0.094                |
| Relevance of instrument test                 | 5.46(0.004)          | 3.99(0.019)         | 7.72(0.000)          | 4.92(0.007)          |
| Sargan-Hansen statistic                      | 0.15(0.704)          | 1.83(0.176)         | 2.61(0.106)          | 1.35(0.246)          |
| Observations                                 | 10,105               | 10,105              | 10,105               | 10,105               |
| Number of id                                 | 3,755                | 3,755               | 3,755                | 3,755                |



**Table 7 - Regression results of the effect of gender diversity in management team on firm debt-maturity according to *Masculinity* index**

This Table shows the second stage of 2SLS regression results with short-term debt as dependent variable. The variables *Instrumented Percentage of Female Executives*, *Instrumented Female Executives Dummy*, *Instrumented Female CEO Dummy* and *Instrumented Female CEO/CFO Dummy* are the fitted values of female indicator from the first-stage regressions. See Table 1 for the definitions of all variables. Sub-samples are created according to 60 value of *Masculinity* index. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*), or 1% (\*\*\*) is indicated.

| Explanatory Variables                        | Sub-sample of countries with high <i>Masculinity</i> index |          |          |          | Sub-sample of countries with low <i>Masculinity</i> index |          |          |          |
|--|--|----------|----------|----------|---|----------|----------|----------|
|  | ST Debt  |          |          |          | ST Debt   |          |          |          |
|  | (1)  | (2)      | (3)      | (4)      | (5)   | (6)      | (7)      | (8)      |
| Instrumented Percentage of Female Executives | 1.589*   |          |          |          | 0.206   |          |          |          |
|  | (0.051)  |          |          |          | (0.296)   |          |          |          |
| Instrumented Female Executives Dummy         |  | 0.399**  |          |          |   | 0.165    |          |          |
|  |  | (0.012)  |          |          |   | (0.288)  |          |          |
| Instrumented Female CEO Dummy                |  |          | 0.685**  |          |   |          | 0.270    |          |
|  |  |          | (0.028)  |          |   |          | (0.326)  |          |
| Instrumented Female CEO/CFO Dummy            |  |          |          | 1.686*   |   |          |          | 0.077    |
|  |  |          |          | (0.095)  |   |          |          | (0.343)  |
| Firm Age                                     | -0.029   | 0.022    | 0.012    | -0.063   | 0.015   | 0.001    | 0.017    | 0.018    |
|  | (0.586)  | (0.346)  | (0.636)  | (0.450)  | (0.448)   | (0.970)  | (0.400)  | (0.360)  |
| Firm Size                                    | 0.008  | 0.010*   | 0.016*** | 0.011    | -0.000  | 0.002    | -0.001   | -0.001   |
|  | (0.472)  | (0.094)  | (0.006)  | (0.441)  | (0.969)   | (0.649)  | (0.788)  | (0.790)  |
| Debt   | 0.220***   | 0.248*** | 0.251*** | 0.227*** | 0.420***  | 0.419*** | 0.420*** | 0.421*** |
|  | (0.000)  | (0.000)  | (0.000)  | (0.000)  | (0.000)   | (0.000)  | (0.000)  | (0.000)  |
| Performance                                  | -0.058**   | -0.029** | -0.032** | -0.041   | -0.028***   | -0.026** | -0.025** | -0.025** |
|  | (0.036)  | (0.044)  | (0.025)  | (0.244)  | (0.009)   | (0.013)  | (0.015)  | (0.017)  |
| Cash Holdings                                | -0.065*  | -0.035** | -0.025   | -0.057   | 0.012   | 0.011    | 0.009    | 0.003    |
|  | (0.073)  | (0.033)  | (0.112)  | (0.205)  | (0.375)   | (0.435)  | (0.489)  | (0.843)  |
| Growth Opportunities                         | -0.031   | -0.021   | -0.015   | -0.042   | -0.041**  | -0.047** | -0.045** | -0.048** |
|  | (0.456)  | (0.351)  | (0.489)  | (0.475)  | (0.028)   | (0.013)  | (0.015)  | (0.013)  |
| Tangibility                                  | 0.010  | 0.008    | -0.009   | 0.015    | -0.009  | -0.006   | -0.007   | -0.010   |
|  | (0.819)  | (0.726)  | (0.709)  | (0.804)  | (0.671)   | (0.772)  | (0.728)  | (0.652)  |
| Capex  | 0.000  | -0.000   | 0.000    | 0.002    | -0.000  | -0.000   | -0.000   | -0.000   |
|  | (0.849)  | (0.712)  | (0.614)  | (0.291)  | (0.265)   | (0.278)  | (0.273)  | (0.288)  |
| Z-Score Dummy                                | 0.010  | 0.007    | 0.012*   | 0.014    | 0.009   | 0.009    | 0.008    | 0.008    |
|  | (0.352)  | (0.203)  | (0.062)  | (0.347)  | (0.131)   | (0.126)  | (0.221)  | (0.229)  |
| Ownership                                    | 0.014  | 0.015*   | 0.002    | 0.012    | 0.003   | 0.001    | 0.002    | 0.003    |

|  |            |            |            |            |            |            |            |            |
|--|------------|------------|------------|------------|------------|------------|------------|------------|
|  | (0.347)    | (0.071)    | (0.840)    | (0.579)    | (0.603)    | (0.772)    | (0.620)    | (0.570)    |
| Interest coverage                        | -0.000     | -0.000     | -0.000     | 0.000      | -0.000     | 0.000      | 0.000      | 0.000      |
|  | (0.370)    | (0.221)    | (0.609)    | (0.853)    | (0.946)    | (0.851)    | (0.990)    | (0.983)    |
| Firm Fixed Effects                       | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        |
| Time Fixed Effects                       | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        |
| R-Squared                                | 0.034      | 0.102      | 0.062      | 0.014      | 0.304      | 0.278      | 0.294      | 0.293      |
| Relevance of instrument test             | 2.36(0.09) | 6.50(0.00) | 4.91(0.01) | 2.51(0.08) | 3.93(0.02) | 3.03(0.05) | 2.99(0.05) | 2.46(0.09) |
| Sargan-Hansen statistic                  | 1.65(0.20) | 1.69(0.19) | 2.13(0.15) | 0.00(0.99) | 0.14(0.71) | 0.05(0.82) | 0.23(0.63) | 0.27(0.60) |
| Chow test comparison between sub-samples | 1.75(0.08) | 6.29(0.00) | 2.84(0.00) | 1.67(0.09) |            |            |            |            |
| Observations                             | 5,630      | 5,630      | 5,630      | 5,630      | 4,475      | 4,475      | 4,475      | 4,475      |
| Number of id                             | 1,900      | 1,900      | 1,900      | 1,900      | 1,855      | 1,855      | 1,855      | 1,855      |

**Table 8 - Robustness test: T-test mean comparison (firms with and without female executives) after propensity score matching**

The Table reports T-test mean comparisons for the continuous variables used in the empirical analysis between firms with and without female executives by employing a propensity score matching procedure. All the variables are defined in Table 1.

| <b>Panel A: Full sample</b>                                   |  |   |                                      |               |                |
|---|--|---|--------------------------------------|---------------|----------------|
|   | <b>Firms without Female Executives (No. of observations=727)</b> | <b>Firms with Female Executives (No. of observations=814)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.079  | 0.105   | 0.026                                | 4.174         | 0.000          |
| Firm Age  | 3.090  | 3.156   | 0.066                                | 1.486         | 0.138          |
| Firm Size   | 11.234   | 11.385  | 0.151                                | 1.497         | 0.135          |
| Debt  | 0.251  | 0.264   | 0.013                                | 1.142         | 0.254          |
| Performance   | 0.013  | 0.027   | 0.014                                | 1.423         | 0.155          |
| Cash Holdings   | 0.132  | 0.124   | -0.008                               | -0.972        | 0.331          |
| Growth Opp.   | 0.130  | 0.125   | -0.005                               | -0.565        | 0.572          |
| Tangibility   | 0.293  | 0.298   | 0.005                                | 0.386         | 0.700          |
| Capex   | 1.446  | 1.342   | -0.104                               | -0.360        | 0.719          |
| Ownership   | 0.400  | 0.382   | -0.018                               | -1.028        | 0.304          |
| Interest Cov.   | 40.553   | 43.972  | 3.419                                | 0.699         | 0.484          |
| <b>Panel B: Sub-sample of countries with high Masculinity</b> |  |   |                                      |               |                |
|   | <b>Firms without Female Executives (No. of observations=394)</b> | <b>Firms with Female Executives (No. of observations=462)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.110  | 0.131   | 0.021                                | 2.303         | 0.022          |
| Firm Age  | 3.245  | 3.235   | -0.010                               | -0.187        | 0.852          |
| Firm Size   | 11.534   | 11.517  | -0.017                               | -0.134        | 0.893          |
| Debt  | 0.297  | 0.313   | 0.016                                | 1.080         | 0.280          |
| Performance   | 0.026  | 0.029   | 0.003                                | 0.211         | 0.833          |
| Cash Holdings   | 0.108  | 0.101   | -0.007                               | -0.656        | 0.512          |
| Growth Opp.   | 0.123  | 0.106   | -0.017                               | -1.371        | 0.171          |
| Tangibility   | 0.326  | 0.333   | 0.007                                | 0.394         | 0.693          |
| Capex   | 0.724  | 0.672   | -0.052                               | -0.257        | 0.798          |
| Ownership   | 0.369  | 0.380   | 0.011                                | 0.501         | 0.617          |
| Interest Cov.   | 35.183   | 44.260  | 9.077                                | 1.592         | 0.112          |
| <b>Panel C: Sub-sample of countries with low Masculinity</b>  |  |   |                                      |               |                |
|   | <b>Firms without Female Executives (No. of observations=307)</b> | <b>Firms with Female Executives (No. of observations=326)</b> | <b>Difference (Female-No Female)</b> | <b>T-test</b> | <b>P-value</b> |
| ST Debt   | 0.064  | 0.068   | 0.004                                | 0.409         | 0.682          |
| Firm Age  | 3.097  | 3.057   | -0.040                               | -0.568        | 0.570          |
| Firm Size   | 11.149   | 11.210  | 0.061                                | 0.370         | 0.712          |
| Debt  | 0.179  | 0.191   | 0.012                                | 0.723         | 0.470          |
| Performance   | 0.039  | 0.022   | -0.017                               | -1.009        | 0.313          |
| Cash Holdings   | 0.165  | 0.160   | -0.005                               | -0.327        | 0.744          |
| Growth Opp.   | 0.154  | 0.158   | 0.004                                | 0.266         | 0.791          |
| Tangibility   | 0.237  | 0.239   | 0.002                                | 0.107         | 0.915          |
| Capex   | 1.751  | 2.380   | 0.629                                | 1.096         | 0.273          |
| Ownership   | 0.374  | 0.389   | 0.015                                | 0.565         | 0.572          |
| Interest Cov.   | 42.091   | 43.721  | 1.630                                | 0.185         | 0.853          |

**Table 9 – Robustness test: T-test mean comparison for transition firms after propensity score matching**

The Table reports T-test mean comparisons for the continuous variables used in the empirical analysis for transition firms after propensity score matching procedure. The treatment group includes firms experiencing a transition from only male to female executives' presence. The firms in the control sample are always run by only male executives. All the variables are defined in Table 1.

| <b>Panel A: Full sample</b>                                   |                            |                |   |               |                |
|---|----------------------------|----------------|---|---------------|----------------|
|   | <b>No. of observations</b> | <b>Mean</b>    | <b>Difference (Post – Pre Transition)</b> | <b>T-test</b> | <b>P-value</b> |
| <i>Treatment Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 839                        | 0.074          |   |               |                |
| Post-Transition ST Debt (Female Executives)                   | 225                        | 0.109          | 0.035                                     | 3.988         | 0.000          |
| <i>Control Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 759                        | 0.075          | -0.001                                    | 0.074         | 0.941          |
| Post-Transition ST Debt (Male Executives)                     | 161                        | 0.075          |   |               |                |
|   |                            | Diff.-in-Diff. | 0.036                                     | 85.263        | 0.000          |
| <b>Panel B: Sub-sample of countries with high Masculinity</b> |                            |                |   |               |                |
|   | <b>No. of observations</b> | <b>Mean</b>    | <b>Difference (Post – Pre Transition)</b> | <b>T-test</b> | <b>P-value</b> |
| <i>Treatment Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 312                        | 0.091          |   |               |                |
| Post-Transition ST Debt (Female Executives)                   | 119                        | 0.144          | 0.054                                     | 3.873         | 0.000          |
| <i>Control Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 318                        | 0.094          | 0.043                                     | 2.362         | 0.019          |
| Post-Transition ST Debt (Male Executives)                     | 56                         | 0.137          |   |               |                |
|   |                            | Diff.-in-Diff. | 0.011                                     | 9.487         | 0.000          |
| <b>Panel C: Sub-sample of countries with low Masculinity</b>  |                            |                |   |               |                |
|   | <b>No. of observations</b> | <b>Mean</b>    | <b>Difference (Post – Pre Transition)</b> | <b>T-test</b> | <b>P-value</b> |
| <i>Treatment Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 504                        | 0.065          | -0.002                                    | -0.190        | 0.850          |
| Post-Transition ST Debt (Female Executives)                   | 94                         | 0.062          |   |               |                |
| <i>Control Group</i>  |                            |                |   |               |                |
| Pre-Transition ST Debt (Male Executives)                      | 435                        | 0.048          | 0.018                                     | 1.207         | 0.228          |
| Post-Transition ST Debt (Male Executives)                     | 59                         | 0.066          |   |               |                |
|   |                            | Diff.-in-Diff. | -0.020                                    | 24.729        | 0.000          |

## Chapter II

### The “bright side” of female: Gender diversity effect on corporate performance in Europe

*This chapter investigates how gender-diversity in management and board of directors affect firm performance, being moderated by masculinity cultural dimension at country-level. Moreover, we highlight how CEO gender affects business activities, and then, the effect of female CEO duality on firm performance is also examined. The results, based on a cross-sectional data of 54,472 listed and unlisted companies in 25 European countries, suggest that the existence of females in management as well as in board have a relevant positive role in shaping firm performance. Cultural differences among countries moderate the form of relationship between gender-diversity and firm profitability, stemming at the core of past controversial results. We argue that differences in a society concerning gender' role lead towards more probability of gender-biasness in the organizational context. In addition, the positive effect of female representation is re-examined in the combined positions of CEO and chairperson of the board. Although, main literature and our analysis suggest a negative effect of CEO duality on firm performance, whereas in considering female CEO duality, this effect turns to be positive. Overall, our findings confirm the potential capabilities of gender-diversity to shape the corporate performance. It can be implied that based on this analysis, the empowerment of females on management- and board-level should be recommended and practically, implemented to flourish this new talent pool for the better performance and effective governing body of the firm.*

*“To win the future, we must equip the young women of today with the knowledge, skills and equal access to reach for the promise of tomorrow. Expanding opportunities for women and girls in the STEM (Science, Technology, Engineering and Maths) fields is critical for growth in 21<sup>st</sup> century economy.<sup>8</sup>”*

-Barak Obama, Past President of United States

## 2.1 Introduction

Over the last 50 years, Europe has been continuously combating against discrimination on the grounds of gender, trying to create a European culture establishing common regulations and borders. Several types of legal act have been set out by EU to meet the aims on gender-equality. For example, recast directive (2006/54/EC) of European Parliament and of the council among other directives (79/7/EEC-social security, 92/85/EEC-safety and health at work of pregnant workers and who have recently given birth, 2004/113/EC-equal access to and supply of goods and services, 2012/18/EU- agreement on parental leave, and 2010/41/EU- equal treatment engaged in an activity in self-employed capacity)<sup>9</sup> in gender equality and non-discrimination has been passed on the implementation of equal opportunities and equal treatment of women and men in cases of employment and occupation. Over the last few years, the gender board quota (legislation) has become an emotional and continuous issue across Europe, where corporate life has long been dominated by men<sup>10</sup>. The gradually rising political, social and cultural perspectives on the gender-equality in organizations has attracted the interest of scholars, policy-makers, stakeholders and institutional investors. The global stress for corporate governance reform has been considered as the most important factor in the direction of gender-diversity (Carter et al., 2010) and several countries in Europe have passed legislation and/or guidelines to balance gender-composition on the top-level of management and board of the firm. For example, Norway was the first European country to approve a legislation (gender quota law) where 40 percent of the directors should be females on the company board<sup>11</sup>. Likewise, in U.K., the report commissioned by the British Department of Trade and Industry, entitled Higgs’s report (2003) has emphasized on the issue that gender-

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<sup>8</sup> Source: OECD website: Gender Equality at <http://www.oecd.org/gender/forum2012.htm>

<sup>9</sup> To see more: [http://ec.europa.eu/justice/gender-equality/law/index\\_en.htm](http://ec.europa.eu/justice/gender-equality/law/index_en.htm)

<sup>10</sup> To break the “glass ceiling”, commission has proposed the legislation with the aim of obtaining 40% of women on boards (link: [http://ec.europa.eu/justice/newsroom/gender-equality/news/121114\\_en.htm#Press](http://ec.europa.eu/justice/newsroom/gender-equality/news/121114_en.htm#Press))

<sup>11</sup> Very recently, Germany has also committed for the gender quota in boardrooms on Friday, March 6, 2015 (source: The New York Times at <http://www.nytimes.com/2015/03/07/world/europe/german-law-requires-more-women-on-corporate-boards.html> ).

diversity improves the board effectiveness as well as encourages the greater involvement of females on the boards.

The key existing empirical research on phenomenon of gender-diversity suggests two basic convictions: gender-diversity enhances performance of the management team in organization and improves corporate governance (Low et al., 2015; Dezsö & Ross, 2012). The first conviction implies that female-group of gender is the source of information and social diversity (Dezsö & Ross, 2012), following by the fact that they tend to have different background, knowledge and experience in comparison to traditional male groups. They are supposed to offer innovative ideas, creativeness, and better problem-solving capabilities by new perspectives and beliefs to team members in order to enhance the overall performance of team and to increase in the shareholders' value, becoming a worthy resource in sustaining firm's competitive advantage. The second conviction enlightens that female directors prefer regular monitoring and controlling; this behavior of females may help them to govern the company in an effective way (Adams & Ferreira, 2009). However, some studies report that there is no direct relationship between gender-diversity and firm performance (Dwyer et al., 2003). On contrary, a few studies exist which have found a negative average effect of gender-diversity on corporate performance (Shrader et al., 1997; Adams & Ferreira, 2009). Consequently, the researchers' recommendations inspired by the mixed empirical findings and to investigate whether the EU achieve to create harmonized European business culture have encouraged us towards a deep investigation of the relationship between the gender-diversity and financial performance.

In order to accomplish the objective of this study, we use a sample of listed and unlisted firms across different countries in Europe. This study focuses on the presence of females on management or on board to represent gender-diversity and investigates how EU based firms managed or governed by females differ from the firms without female board members or executives to explore the corporate profitability in the presence of females.

The empirical findings corroborate the expectation of the study, showing that gender-diversity (i.e. representation of females) in management and in board group does significantly affect the financial performance of the firm. The empirical outcomes show that firms managed by higher percentage of female executives on management group tend to have positive impact on the financial performance of firm. The positive effect of female on firm performance remains even when we investigate the relationship between the female board members and firm performance, which is consistent with the results of Carter et al. (2003), Erhardt et al. (2003), Farrell & Hersch (2005), Dezsö & Ross (2012) in U.S. market, Campbell & Mínguez-Vera

(2008) in Spain, Smith et al. (2006) and Francoeur et al. (2008) in Denmark, Du Rietz & Henrekson (2000) in Sweden, and Low et al. (2015) in Asian context. The results on positive impact of gender-diversity on management and board group are consistent when we again perform the analysis but using different proxies of gender-diversity namely *female executives dummy* and *female board members dummy*. Furthermore, we find that this positive effect of the percentage of female executives or percentage of female board members seems to be consistent in case of female presence at top level management positions (i.e. female CEO, and female CFO).

In addition to the main analysis, to explore the effects of gender-diversity on financial performance of the firm across different European countries, we also investigate this association under the shadow of gender role differences across national culture. Since human behaviour, traits and attitudes are being shaped by the national culture of the company (Doney et al., 1998), we expect that the effect of gender-diversity on financial performance of the firm, could be moderated by masculinity/femininity features among countries. The association of gender-diversity with the firm performance is significantly conditioned by masculinity ratings (a specific cultural feature of the country). We determine that both measures of gender-diversity namely, percentage of female executives and percentage of female board members are negatively moderated by the masculinity aspect of national culture.

As a complementary analysis, we shed light upon the board leadership structure from gender dimension. A majority of the literature found that when a CEO also serves as the chairman of the board of directors, it is more likely to damage the firm performance (Fama & Jensen 1983). Thus, it has been recommended to separate these two positions. This negative effect suggested, especially nowadays, to have independent chairman to promote and oversee the highest standards of corporate governance within the board and the company (Cadbury report, 1992). However, different perspectives exist. While a few studies (Baliga et al., 1996; Brickley et al., 1997; Yan Lam & Kam Lee 2008) found no statistically significant effect of CEO duality on firm performance, a different stream of research (Anderson & Anthony, 1986; Stoeberl & Sheroony, 1985) pointed out that vesting the two positions in one individual provides unambiguous leadership which offers a clear focus on objectives and operations of firm. These mixed results suggest that the effect of CEO duality can be as a by product of the lack of consideration to CEO characteristics. With this regard, our analysis intends to test whether the positive effect of female characteristics on firm's performance is able to provide benefits to the business also in case of CEO duality. Any negative effect of the CEO duality may be counterbalanced by the attitudes of female. Our analysis suggest that the more ethical, caring



and altruistic nature of female are at the core of the benefits of female CEO-chair leadership. We find evidence that female CEO duality leadership increases the corporate performance by offering a strong leadership and effective monitoring. We argue that female holding both titles of CEO and chairperson of board can perform more effectively by reducing the managerial opportunism and CEO entrenchment as their higher level of ethical attitude, morality and greater universal concern may not allow them to enjoy their power and positions at the cost of others (owners or shareholders and other stakeholders).

This study has four value-added features. First, we consider gender-diversity on management group, which, except one study in the past (Dwyer et al., 2003) has not gained enough attention from scholars in the field of corporate finance and corporate governance. The outcomes of this chapter improve our insights on the relationship between gender-diversity and firm performance, probing the effect of female representation in management and board group of the firm. In the past, most of the studies were limited to the top-level management group. The role of gender-diversity on management-level remained immature. Since the middle-level managers and officials play a significant role not only to influence the strategic formulation procedure but also in executing the strategies (Floyd & Wooldridge, 1992), we extend this analysis to include not only the top-level management group members, who formulate the business strategies and policies but also those executives (managers), entitled middle-level management, department managers and salaried supervisors, who implement these policies. Second, the study provides better understanding of the relationship between gender-diversity and financial performance of firm by analysing the moderating effect of cultural factors, which is considered as one of the important dimension which distinguishes companies' behaviour from one country to another. Third, we magnify the relationship between the gender-diversity and corporate performance by corroborating a unique dimension to this analysis, that is, female CEO-chair. For the very first time, the board leadership structure was investigated from gender lens. This additional analysis delivers further support to the positive effect of females' presence on performance of the organization. It improves our understanding not only on the controversial CEO duality leadership literature but also contributes to the corporate governance and finance literature. Finally, fourth unlike most of the previous studies on this topic that exclusively emphasis only on listed companies, our sample includes both listed and unlisted firms for the analysis to make it better representative<sup>12</sup> (Hall & Joergensen, 2015).

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<sup>12</sup> Since unlisted companies make a major contribution to economic growth of all EU member states, and a large proportion of firms in Europe are unlisted, it is appropriate to include unlisted companies along with listed ones, to increase the representativeness of the study.

The chapter is organized as follows: Section 2 reviews previous literature and describes research hypotheses. Section 3 describes data sample and the research methodology. Section 4 explains the descriptive statistics. Section 5 reports the results. Section 6 presents the conclusion.

## **2.2 Literature Review and Hypothesis Development**

In this section of the chapter, we explore the theoretical perspectives on the relationship between gender-diversity and firm performance. Then we review the existing evidence to get better understanding of the association between gender-diversity and financial performance of the firm. Later, we develop the hypotheses based on the existing theories and empirical findings in the context of gender-diversity and firm performance.

### *2.2.1 Gender differences*

A large body of psychology and economics literature documents that there exists the significant behavioural differences between females and males. These differences can be assumed to reflect not only their personal life decisions but also the professional life decisions. According to a recent study of (Croson & Gneezy, 2009), the authors analyze the experimental literature on gender-differences and they confirmed about the existence of the fundamental differences (risk, social and competition preferences) across gender. In previous gender differences studies, several parameters namely overconfidence, ethical behaviour, moral development, modesty, faithfulness and leadership styles have been studied that could be applied to explore the behavioural differences between females and males. Since the rise of 1980's, ethics have become the focal concern of corporations, institutions and academia. Moreover, certain journals have completely devoted their focus to the research on business ethics and values. For example, *Journal of Business Ethics*, *Business and Professional Ethics Journal*, *Business Ethics Quarterly* and *Business Ethics: A European Review* are few key journals, publishing the research work related to ethics and values. The gender has become one of the most prominent variables, studied in empirical studies on ethical decision making (Ford & Richardson, 1994). In this direction, Ferrell & Skinner (1988) and Ruegger & King (1992) suggest that gender play a significant role in determining the ethical behaviour of individuals. A large number of studies have been conducted to explore the gender differences in ethical

attitudes and decisions. Although a few studies find no significant differences between females and males in ethical decision making, a many empirical findings suggest that women are more ethical than men.

In this direction of research, Bernardi and Arnold (1997) find that female managers tend to have higher level of moral values in comparison to their male counterparts. Similarly, Ferrell & Skinner (1988) report that female researchers report higher levels of ethical behaviour in comparison to male researchers. Many other studies find evidence that female business students (as proxy of future business professionals) are more concerned about ethical issues in comparison to their male counterparts (Beltramini et al., 1984; Chonko & Hunt, 1985; Jones & Gautschi, 1988; Betz et al., 1989; Peterson et al., 1991; Ruegger & King, 1992; Whipple & Swords, 1992; Borkowski & Ugras, 1998). Dawson (1995) analysed the differences between women and men in the context of moral reasoning and ethical decision making. By focusing on qualitative aspect differences between females and males across different dimensions of ethical attitudes and behaviour, Dawson suggested that women and men are considerably different in their moral reasoning and they argued that women' unique characteristics (such as sensitive and caring treatment with customers, relationship-oriented, more creative approach towards problem-solving, creating trust in interpersonal relationships, and supportive and understanding supervisory style) can be viewed as improving ethical environment and women' voice should be heard in order to raise the level of ethical standards in the organizations. In several earlier studies on ethics, it has been reported that women are more sensitive to unethical behaviours than males (Stedham et al., 2007). Further, Williamson (2003) suggests that firms with higher number of female board of directors report more engagement in activities related to corporate social responsibility. Recently, Adams & Funk (2012) conducted a large survey study on the executive directors and report that the key differences between females and males remain even at the top positions and after controlling for the observable features of the directors. Adams & Funk suggest that female executives and board of directors are more caring (benevolent) and universally concerned but less power-oriented in comparison to their male counterparts. The above-mentioned arguments of behavioural gender-differences in relation to personal characteristics of gender imply that the percentage of female executives and board members in the organization may affect the performance of management and board group members and thereby, the overall performance of the firm.

### 2.2.2 Agency theory

Agency theory or principal-agent relationship theory is a preliminary theoretical framework which has been implied by many researchers in the arena of economics, finance and organizational behaviour to determine the relationship between board-diversity and value of the firm. The well-known arguments of Fama & Jensen (1983), define the function of board as a mechanism to monitor and control the opportunism of executives, particularly top-level executives of the firm. In agency framework, the corporate board members work as arbitrators in situation of divergence of interest between managers and shareholders by establishing appropriate compensation schemes for the managers and replacing the opportunistic top managers.

It has been long acknowledged in literature that females are considered to be more disciplined (Duckworth & Seligman, 2006), and ethical (Beltramini et al., 1984; Chonko and Hunt, 1985; Jones & Gautschi, 1988; Betz et al., 1989; Peterson et al., 1991; Ruegger & King, 1992; Whipple & Swords, 1992; Borkowski & Ugras, 1998) in comparison to their male counterparts. Thus, it is possible that the high level of ethical behaviour, higher moral values and more caring nature make females more trustworthy and committed. These differences between women and men can not only be assumed to affect their personal life decisions but can also be assumed to reflect their professional life. The higher level of ethical behavior of female directors make them possibly more responsible and dutiful for their work. Moreover, it is possible that higher ethical behaviour and moral values of female may also motivate and compel the behavior and dutifulness of other members of their team. In this direction, Adams and Ferreira (2009) also suggested that gender diverse board improves the monitoring function of the board in case ineffective governance in firm because female directors are more likely to attend board meetings and less likely to have any attendance issues. Adams & Ferreira advocated that female attendance behaviour motivates and compels the male directors' behaviour in relation to their tendency to attend board meetings and argue that women directors presence on board increase in the number of the board meetings. Moreover, Adams & Ferreira found that more diverse board are more likely to hold CEO accountable for the poor performance of stock price; CEO turnover was found sensitive to stock price performance in firms with more females on the boards. Therefore, it can be assumed that gender diverse board are effective monitor and controller as the top executives are precisely observed and punished for improper outcomes.

An effective monitoring by gender-diverse board can be supposed to reduce the problem of opportunism and agency conflicts in line with argument that more ethical behaviour of female corporate board members would work as a motivating and compelling factor for other board members to fulfill their jobs with full efforts and dedication to be a better monitor and controller of top executives (management). In presence of effective governance by board of directors, it will be very unlikely for executives to deviate from the interest of shareholders (i.e. maximization of shareholders' value). Based on the above arguments, it could be inferred that board composed of females can improve the effectiveness of board functioning. The higher proportion of female board members may help the firm to reduce the propensity of executives' opportunism (self-interest seeking) and in turn, reduce agency costs through effective monitoring and controlling performed by board members and improves the performance of firm.

Similar to the board group, the presence of female executives in management team inspires and compels the behaviours of other executives to behave more ethically and socially, thereby performing their managerial functions with full efforts and dedication. In this manner, gender diverse management team may reduce the propensity of managerial opportunism among executives and reduces the agency costs of the firm, improves overall performance of firm.

### *2.2.3 The resource-based theory*

According to the resource-based theory, firm is defined as- a bundle of resources. The resource-based view of competitive advantage of Barney (1991) investigates the relationship between the firm-specific features and its performance. In particular, this theory highlights the role of the physical (i.e. plant, equipment, location and raw materials), human (training, intelligence, relationships, judgement, experience, and insights of managerial and workers in the company), and organizational resources (formal reporting structure- planning, controlling and coordinating systems, and informal relations among groups within firm) in determining the corporate performance, given that firm resources under its control must be valuable, rare, imperfectly imitable and no strategically equivalent substitute. The resource-based view of Barney (1991) suggest that human capital resources can be the most crucial source of competitive advantage<sup>13</sup> of firm because the managerial features are the most sustainable human resources of firm and difficult for competitor to imitate.

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<sup>13</sup> Barney (1991, pp. 102) says that - "a firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors".

In line with resource-based view, gender diversity, therefore can be a source of competitive advantage (Shrader et al., 1997; Farrell & Hersch, 2005). The work of Cox & Blake (1991) reviewed rationales and research data to explore the association of diversity with competitive advantage. According to Cox & Blake (1991), other than the social responsibility goals of companies, there are six other areas where the strong management can create competitive advantage and Cox & Blake view gender diversity as resource acquisition issue. Cox & Blake argue that as the representation of females and minorities increases in in labor pool, the companies are required to hire and retain the talents from these groups. Jelinek & Adler (1988) argued that women being non-traditional managers, could bring new skills to firm to deal with global challenge. Jelinek and Adler interviewed North American women managers who were sent to accomplish some foreign assignments in Asia. Jelinek & Adler found that women were successful in establishing good interpersonal relations and cooperative alliances with their counterparts. In the last of 20<sup>th</sup> century, Rosener (1995) documents that females can improve the flexibility of firms and allow to deal with the uncertain circumstances. Rosener highlights the issue that the underrepresentation of females in management could lead to an economic obstacle for the country. Shrader et al. (1997) argue that higher number of female in management positions should be positively associated with better organizational learning, climate, and in turn performance. Thus, increasing presence of females on management and board team could improve the firm performance as females are a key source of competitive advantage which turn into add value to the firm.

#### *2.2.4 Empirical evidence and hypotheses development*

The previous empirical research on the relationship between gender-diversity and financial performance produce mixed and controversial results. However, a large amount of literature presents arguments in the support of gender-diversity in the organizations. Carter et al. (2003) investigated a sample of U.S. firms and found a positive impact of board gender-diversity on firm performance, using the agency theory. Campbell & Mínguez-Vera (2008) analyse the relationship between board gender-diversity and firm performance using a panel data on Spanish firms. Campbell & Mínguez-Vera suggested a positive relationship between board gender-diversity and firm performance, measured by Tobin's Q. Erhardt et al. (2003) examine the relationship between board gender-diversity and firm value using a sample of large U.S. companies and report a positive correlation. Based on a sample of Standard & Poor's (S&P) 500 U.S. firms, Adams & Ferreira (2009) investigate the relationship between the

presence of female directors and firm performance and propose that the gender diverse boards are characterized by the potential for greater participation of directors in the decision-making (through attendance and committee assignments), more incentive alignment, and tough monitoring. However, their findings report a negative relationship between the percentage of females on board and Tobin's Q. Adams & Ferreira argue that gender diverse board have a positive impact on firm performance in companies that otherwise have poor governance. Frink et al. (2003) findings reinforce the nonlinear relationship of gender-composition and performance of the organization. Shrader et al. (1997) using a sample of 200 largest US firms, investigate the relationship between board gender-diversity and firm performance and find no significant relationship between the percentage of female board members and firm value, measured by return on assets, return on equity and profit margins of the firms. Farrell & Hersch (2005) conduct a research based on Fortune 500 companies and show that the increase in the female board members have no significant impact on firm value, in terms market returns to shareholders and return on assets. Francoeur et al. (2008) examine the association between female presence at the senior-level management and board and the firm performance. They report the positive impact of proportion of female senior officials on the financial performance of the firm but they find no result in case of board gender-diversity. Smith et al. (2006) use a sample of largest Danish firms to investigate the correlation between gender-diversity (CEO, and board of directors) and firm performance. They argue that there is a negative effect of female board directors on gross profits to sales, whereas no statistically significant relationship has been found between board gender-diversity and other accounting measures of firm performance. In study of Rose (2007), the authors examine the relationship between board gender-diversity and firm performance based on a sample of Danish firms listed on Copenhagen Stock Exchange and they report no statistically significant relationship between the women representation on board and firm performance, measured by Tobin's Q.

Based on the theoretical background, the agency theory as well as the resource-based view of the competitive advantage, the positive relationship can be predicted between gender-diversity on management and board group and firm performance. From agency perspective, the gender-diversity on management and board group may help the firm to reduce the propensity of opportunism and agency costs in line with the arguments that higher level of ethical behaviour and moral values in females make them more responsible to perform their jobs with full efforts and dedication. It can also be assumed that female who are more ethical, may motivate and compel the other members of the team to behave and work more ethically and socially in the mutual interest of firm stakeholders. This implies that females (who are

considered to be more disciplined) at board group improve the monitoring function of the board, while females on management team reduces the self-interest seeking and inspire the management team members to work effectively to enhance the shareholders' value.

It is documented that diversity in resources of the firm is an important source of competitive advantage (Cox & Blake, 1991) and the resource-based view of Barney (1991) suggests that sustained competitive advantage adds value to the firm. It can be implied that females on management and board group can be a source of competitive advantage as they bring diversity in skills, knowledge, experience and information to the homogenous male-dominated management and board group and enhance the performance of the firm.

In line with the view of agency theory and resource-based theory, it can be implied that females on management and board group may have positive impact on the financial performance of the firm. Hence, following the above body of knowledge, we develop the following hypothesis:

***Hypothesis 1: Female representation in management or among board members has a positive impact on firm financial performance.***

It will be very important to observe the impact of gender-diversity on firm performance in cross-culture settings because the national culture plays a vital role in shaping the behavioural differences among the individuals of that society. In this regard, the previous studies have ignored the culture-oriented gender differences across countries. However, in the field of culture study, the work of (Hofstede, 1980; Hofstede, 1991) has made remarkable contribution by suggesting some very important dimensions for measuring cultural differences<sup>14</sup>. This comprehensive and persuasive approach of Hofstede has been implemented by many researchers for selecting those countries which are maximally different in terms of cultural values so that significant amount of variance can be gained to conduct meaningful research work on culture (Kirkman et al., 2006). Hofstede's cultural dimensions have been applied to evaluate structural differences across nations, however those indices can also be applied to explore executives' behaviour nation by nation. For instance, a far from the domain of corporate governance and legal systems, cultural traits influence the managerial perceptions

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<sup>14</sup> According to Hofstede, culture is a collective programming of mind which distinguishes the members of one group or category of people from another. He presents four basic problem areas represented as dimensions of cultures: power distance, collectivism versus individualism, femininity versus masculinity and uncertainty avoidance. Hofstede surveys data about the values of people in over 50 countries around the world. These people worked in the local subsidiaries of one large multinational corporation, IBM. After the statistical analysis of answers, IBM employees in different countries revealed common problems, but with solutions differing from nation to nation.



in the firm (Chang & Noorbakhsh, 2006). Different cultural backgrounds, religions and beliefs affect to the economic agents' decision making. As a result, it can be believed that cultural factors can be assumed to affect the behaviour of executives and board members and can also reflect their final outcomes.

One of four dimensions of culture, *Masculinity* dimension captures the preferences for differences in gender-role to be defined among females and males of an individual culture. *Masculinity* denotes the societal favouritism for achievement, heroism, material success, and assertiveness. On the other hand, *Femininity* refers to the preferences for relationships, decency, the quality of life and carrying for weak. The highest level of social-role distinction between males and females identifies the high masculine societies, whereas low masculine societies strive for the lowest level of social-role distinction between them. As a result, it is plausible to imagine that in atmospheres of high *Masculinity*, which has been demonstrated as a society of high level of social discrimination in social-role of gender, the females might start to underestimate their skills, knowledge and experiences and might estimate themselves as incapable to handle challenging situations. This is reason why there are fewer females in management, large wage gap between males and females in high *Masculinity*-level societies.

Such circumstances might make females more conservative and less overconfident, i.e. females' confidence-level might be lower in high *Masculinity*-level countries in comparison with low *Masculinity*-level countries. Females might feel more uncomfortable, shy and less overconfident in masculinity intensive countries since they might be too "feminine" to perform well in male-dominated areas. Therefore, it is significant to purport that on management and board group, females residing in high *Masculinity*-level countries might reduce their own efficiency to performance well, whereas this difference can be expected to become opposite in low *Masculinity*-level countries (high *Femininity* countries). The females on management and board group feel more comfortable to work in environments where everyone has equal rights in terms of accessing resources or power. The high-level of equality in social role of females and males, allow them to work freely and to express and protect their ideas and opinions like males. On the other hand, gender-diversity on management and board group might not be influential because the females' ideas, perspectives and knowledge will not be analysed due to high level of gender biasness. Such circumstances generate conflicts among team members and increase the propensity of opportunism by the executives. It is possible that the more ethical behaviour of females on management or board group may create problems and they are not strong enough to motivate and compel other members to behave more ethically and socially to fulfil their functions effectively. It can be assumed that increasing females on management and

board group may have an adverse impact on firm performance as culturally, they are not expected to do this kind of jobs and in addition, females also may not feel comfortable and confident to work in such atmosphere. Therefore, we hypothesize:

***Hypothesis 2:*** *The impact of female representation in management or among board members on firm financial performance is negatively moderated by high-masculine countries.*

### *2.2.5 Corporate leadership structure and firm performance*

In corporate governance literature, corporate leadership structure has been considered as one of the most crucial and visible aspect of corporate structure. The terminology leadership structure refers to whether one individual or two individuals serve in the roles of chief executive officer (CEO) and chairperson of the company board. In general, the term “CEO duality” refers to the leadership in which one person puts on two types of hats simultaneously- one as CEO of the firm and another as chairperson of the company board (Rechner & Dalton 1991, Boyd 1995). By contrast, the independent leadership defines the case where two different persons are entitled to these two titles of CEO and chairperson in the company.

In search of an optimal solution to the most debated topic of corporate governance and strategic management (i.e. CEO duality leadership), a vast body of research has been devoted to the question- whether one person should serve both positions of CEO and chairperson of company, or whether two different individuals should be entitled to these roles, Mainly, two opposite theoretical frameworks, based on the stewardship arguments and agency perspectives have been implemented in previous studies. On one side, the former suggested that CEO duality leadership support the strong and unambiguous leadership rationale, while the latter advised that opportunism and ineffective monitoring can damage the firm. Mainly, the stewardship theorists argue that managers are good stewards of corporate resources (Donaldson & Davis, 1991), and so CEO duality is a situation that create benefits in managing a company. Empirical studies (Donaldson & Davis 1991, Mallette & Fowler 1992, Boyd 1995, and Peng et al. 2007) present the following potential benefits of CEO duality leadership that are, unity of command, CEO-chair offers a strong and unambiguous leadership, that could rise when the power is not shared, facilitates with internal efficiencies due to unity of command, eliminates the potential conflicts between two bosses CEO and chairperson, reduces the information costs (Brickley et al., 1997) and finally, avoids ambiguities of having two spokespersons to address stakeholders

of the firm. In addition, Donaldson (1990) also advocates that in CEO duality leadership, there is no issue of blame game between management and board of directors because CEO is also in charge for corporate decisions and control and cannot blame any other for poor results. Therefore, it can be concluded that that CEO duality leadership leads to effective actions and thereby directs to the higher financial performance.

On other side, in line with the agency perspective, shareholder activists, regulators, legislators and board reformers argue that combined titles of CEO and chairperson of board can be attributed as the CEO is grading his own work (Brickley et al. 1997). Since Cadbury report (1992), due to the high concentration of power, it has been suggested that the two titles of CEO and chairperson of company should be separated to have effective governance of company. According to the agency theory, there are conflicts of interests between managers and shareholders (owners), and the board of directors has a central role as a monitoring device (Jensen & Meckling 1976; Fama & Jensen 1983). Nevertheless, to ensure the effective functioning of monitoring device, it is essential to separate the decision management (i.e. rights to initiate and implement the recommendations for resource allocation) from decision control (i.e. rights to ratify and monitor the resource commitments) of the company, where according to Fama & Jensen (1983), CEO duality ‘signals the absence of separation of decision management and decision control’, and the board of directors is not able to effectively monitor and control the activities of CEO and top management team. Moreover, CEO entrenchment will be promoted and the control device (i.e. the board of directors) become not anymore independent and effective (Finkelstein & D’aveni 1994)<sup>15</sup>. As result, CEO duality leadership increases the CEO entrenchment, reduces the board monitoring effectiveness, damages the independence of board of directors from management and fails to get the advice and directions of chairperson of board. Therefore, it can be implied that CEO-duality leadership may have negative impact on firm financial performance (Berg & Smith, 1978; Rechner & Dalton, 1991; Pi & Timme, 1993; Fosberg & Nelson, 1999; Chen et al., 2005).

Empirical studies presented mixed and controversial outcomes on CEO duality and firm performance. On one hand, a few studies proposed the lack of any statistical significant relationship (Baliga et al., 1996; Brickley et al., 1997; Yan Lam & Kam Lee, 2008). On the other hand, mostly papers found a negative effects of CEO duality on firm performance (Berg & Smith, 1978; Rechner & Dalton, 1991; Pi & Timme, 1993; Fosberg & Nelson, 1999; Chen

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<sup>15</sup> CEO duality and opportunism can create several kinds of costs such as higher level of executive compensation Boyd (1994), awarding golden parachutes (Singh & Harianto,1989), and adoption of ‘poison pills’ (Malette & Fowler,1992).

et al., 2005) and only a minor part of the literature reported a positive association (Donaldson & Davis, 1991; Mallette & Fowler, 1992; Boyd 1995; Peng et al., 2007). These inconsistent evidence rises some apprehension about the association of CEO duality leadership with financial performance of the firm, suggesting a potential explanatory power considering the moderating role of the competitive environment (Boyd 1995; Yang & Zhao 2014) or with regards to the CEO features or demographic characteristics of leaders. We argue that gender, which have gained great attention from researchers in terms of board and top management gender diversity, can be a key variable in exploring the role of CEO duality. A focus on the gender dimension of CEO duality (i.e. female CEO duality) and behavioural differences jointly may generate a potential area of inquiry about the relationship between CEO duality and firm performance. Though this aspect of CEO-duality has not yet been explored, it could deliver significant insights on the issue. For example, it can provide a further evidence corroborating the potential benefits/costs of female managers acting into the firm.

As we have previously mentioned in gender-differences sub-section of the paper, different parameters such as overconfidence, preferences, moral development, modesty, faithfulness and leadership styles have been studied to explore the behavioural differences between females and males. It has been suggested that behavioural differences (i.e. level of confidence, risk pervasiveness, etc.) may reflect not only individuals' personal life decisions but also professional life decisions (Croson & Gneezy, 2009). Female have higher level of moral values than their male counterparts (Bernardi & Arnold 1997), and are more concerned about ethical issues (Beltramini et al., 1984; Borkowski & Ugras, 1998; Peterson et al., 1991). Later, it has been proposed that female executives and board of directors are more caring (benevolent) and universally concerned but less power-oriented in comparison to their male executives and board of directors' counterparts (Adams & Funk 2012).

Following the existing evidence on gender-differences, it can be implied that more ethical and moral attitudes in females than males make them (i.e. female) more responsible and dutiful towards their roles (duties) as well as such attitude can be assumed to motivate and compel behaviours of other members. Being more altruistic, trustworthy and less power-oriented by nature may motive female CEO-chair to be more likely to work for mutual interests. It can be imagined that female holding both titles of CEO and chairperson of board can perform more effectively by reducing the managerial opportunism and CEO entrenchment as their higher level of ethical attitude, morality and greater universal concern may not allow them to enjoy their power and positions at the cost of others (owners or shareholders and other

stakeholders). The “dark side” of CEO duality, in terms of strong power concentration and managerial dominance, becomes less relevant in case of female CEO-chair, due to the intrinsic nature and attitudes of women. In line with perspectives of stewardship theory, it rises the “bright side” of CEO duality that the firm with female CEO-chair leadership may be more likely to enjoy the classic benefits of combined leadership through providing unity of direction, and of command as well as offers lower information costs (Brickley et al., 1997).

Based on qualitative and descriptive analysis, it is suggested that Indra Nooyi, (PepsiCo); Mary T. Barra, (General Motors); Nancy McKinstry, (Wolters Kluwer); Angeliki Frangou (Navios Maritime Holdings) are few famous examples of females holding these double positions as CEO and chair of the board who are showing a strong leadership but at the same time a more ethical behaviour in business decisions. Thus, based on the above mentioned theoretical justification and evidence, we may posit that female who holds both titles of CEO and chairwoman of the board may solve the agency problems, improve board monitoring as well as bring a strong and unambiguous leadership and unified direction to the firm and contribute to increase the firm performance.

***Hypothesis 3:** Female CEO-duality has a positive impact on firm financial performance.*

## **2.3 Research Design**

### **2.3.1 Data**

Multiple sources of data have been used to fulfil the goal of the chapter. Firms-specific variables are collected by Amadeus which is compiled by Bureau Van Dijk (BVD), one of the leading electronic publisher of corporate information in the Europe. Country-specific variables are obtained by OECD PATSTAT. For country-culture specific data, Professor Geert Hofstede cultural dimensions on national cultural has been used. Professor Geert Hofstede work has been considered one of the most comprehensive studies which has been extensively used to study cultural differences across nations.

This research involves all the countries that constitute the Eastern and Western geographical region of Europe. The cross-country dataset allows us to contribute to existing literature on the link between gender-diversity and firm performance because most of the existing studies have been conducted on single country data sample such as U.S., Norway,

Denmark and Spain. In addition, this cross-country sample allows us to include firms with diversified institutional environment to improve generalization of results (Terjesen et al., 2015). To our knowledge, only one study on cross-country European dataset is the study of Christiansen et al. (2016). Therefore, our study add value to the limited cross-country analyses on the relationship between gender-diversity and firm performance.

The firms had to fulfil the following criteria to be the part of our sample of European firms. First both listed and unlisted companies have been included. We use this selection criteria because the unlisted firms comprise a large sample of Europe and play a significant role in the economy development. Second, we excluded those firms which belong to educational, financial and social sectors as the business and financing activities of firms in these sectors tend to be influenced by regulatory and other specific features that differentiate those Hanssens et al. (2016). Third, we also excluded the public authorities and non-profit organizations from our sample as the objective function of these type of organizations is not profit-maximization. To avoid any kind of human error in reporting information, we eliminate all those firms which contain some unreliable information (such as those which had represented negative values of loans, long-term debt and tangible fixed assets). Furthermore, we excluded firms which contain missing information for any of the variables that are used in the main regression estimation model. Therefore, the final sample covers 54,472 firm year observations over the period of 2014<sup>16</sup> for 25 countries. All the continuous accounting variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles to fix the impact of outliers and data coding errors on the estimation results. In the Appendix 1, we describe list of countries in sample.

### 2.3.2 Main variables

Regarding the variables used in the empirical model, Table 1 displays the definitions of all variables, included in the analyses of the relationship between gender and firm performance.

\*\*\*\*\* Insert Table 1 Here \*\*\*\*\*

The dependent variable of interest to be studied is financial performance of the firm. In the previous literature of corporate finance, two kinds of performance proxies have been suggested- financial accounting data based measure (e.g. ROA, ROE, ROI and ROS, etc.) and

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<sup>16</sup> We have also collected the data for 2013 for accounting variables to formulate any variable in our analysis.

market-data based measure (e.g. Tobin's Q). We defined firm performance as a firm's *Return on Assets (ROA)*. This measure of performance allows the comparability with the preceding studies which had classically relied on this proxy as a performance index (Zona et al., 2015). *ROA* is defined as ratio of net-income to the total assets of the firm and it is the most commonly used measure of firm performance (Adams & Ferreira, 2009; Easterwood et al., 2012).

The independent variable to be analysed is gender-diversity. To explore the gender-diversity impact on the financial performance of the firm, six variables have been used as proxies of gender-diversity at different hierarchies of the organization. We extended our investigation of management group<sup>17</sup> by involving not only the top-level executives, who set corporate strategies, but also those managers who execute these strategies titled as middle management, department managers and salaried supervisors. De facto, the concern is in those who could be said to be in strategic positions (Pettigrew, 1992). For supplementary effect of gender-diversity, we forwarded our examination to board of directors. The first variable is the *Percentage of Female Executives* from all levels of management (top-level, middle-level and lowest-level). This variable is calculated as the total number of female executives divided by total number of executives in a firm (Dwyer et al., 2003; Carter et al., 2010; and Dezsö & Ross, 2012). The second variable is the *Percentage of Female Board-Members* in the organizations. This variable is calculated as the total number of female board members (directors) divided by total number of board members (directors) in a firm (Campbell & Mínguez-Vera, 2008). Third measure of gender-diversity is *Female Executive Dummy* which is equal to 1 when at least one female executive presents in the firm and 0, otherwise (Campbell & Mínguez-Vera, 2008). The fourth proxy is *Female Board-Members Dummy* which equals to 1 if at least one female board member presents in the firm, and 0, otherwise. Fifth variable for gender-diversity, *Female CEO Dummy* is a dichotomous variable which is equal to 1 when there is a female Chief Executive Officer (CEO) is a female, and 0 otherwise (Smith et al., 2006; Khan & Vieito, 2013). Last proxy of gender-diversity, *Female CFO Dummy* which is dichotomous variable, equal to 1 when there is a female Chief Financial Officer (CFO) in the firm, and 0 otherwise.

To avoid the biased estimators, we used several firm-specific, management-specific, governance and other factors as control variables in relation to the previous literature. We include *Firm Size*, is measured, by the natural logarithm of total assets (Campbell & Mínguez-

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<sup>17</sup> It involves all those persons who actively working in the firm on a daily basis, who deal with current affairs on an executive's point of view, but do not necessarily sit on the table of the board of directors. Manager, executive officers, employees, representatives etc. are all part of active workforce of a company and therefore belong to management or executives' group.

Vera, 2008). *Firm Age* is defined as the natural logarithm of number of years from year of foundation (Low et al., 2015). *Financial Leverage* is measured as the ratio of total financial debt to total assets (Campbell & Mínguez-Vera, 2008). *Cash Holdings* is calculated as the natural logarithm of cash & cash equivalents. *Assets Growth* is measured as the percentage variation of total assets from year t-1 to year t. *Ownership* is defined as the direct and indirect ownership of top largest shareholder. *GDP Growth* is defined as annual percentage growth rate of Gross Domestic Product (GDP). We used control for managerial characteristics. *Average Age of Executives* is calculated as sum of executives' age divided by total number of executives. *Average Age of Board Members* is measured as sum of board members' age divided by total number of board members (Carter et al., 2010). *Proportion of Foreigner<sup>18</sup> Executives* is calculated as the total number of foreigner executives divided by total number of executives in the firm of each country. *Percentage of Foreigner Board Members* is calculated as the total number of foreigner board members divided by total number of board members in the firm (García-Meca et al., 2015).

Furthermore, we also control for the industry effects because it has been proposed that opportunities available to the firm to earn profits is determined by the structural factors that affect average profitability of the industries and the industry structure tend to have a significant impact on firm profitability (Robins & Wiersema, 1995).

Finally, to test our second hypothesis, we used the country-level score of Masculinity index (Hofstede, 1980). In the setting of attitude surveys of more than 116,000 predominantly male IBM employees, Hofstede (1980, 1991) suggested the national differences in terms of cultural masculinity, followed by diverse intensity of male role distinctiveness. *Masculinity* dimension measures the inclinations for the gender-role distinctions to be made among males and females in an individual country-culture (society). From the one hand, *Masculinity* inclined culture refers to those groups of societies in which gender roles are clearly different, precisely males are deemed to be assertive, tough, and focused on material success, and females are expected to be more modest, tender, and concerned with quality of life. Whereas, *Femininity* featured culture demonstrates those groups of societies where gender role socially overlaps; exclusively, both males and females are assumed to be kind, friendly, and concerned with quality of life. The raw data for the *Masculinity* index were collected between 1967 and 1973, but although there was some increase in *Masculinity* over time in most countries, the cross-

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<sup>18</sup> The title foreigner was assigned to the executives/board members on the basis of nationality information of the executives/board members.



national differences in *Masculinity* were constant Hofstede (1980), so we can be confident of using this parameter. The values of *Masculinity* index that we utilized to distinguish between high and low indexes and that we used to generate the sub-samples to test our third hypothesis, is third quartile value of index in our sample.

### 2.3.3 Methodology

This objective of this study is to analyse the relationship between gender-diversity and firm performance using a basic model along with moderating variable.

$$\text{Firm Performance} = f(\text{Gender diversity, Control Variables, Moderator})$$

The endogeneity problem is a primary concern during the examination of the relationship between gender-diversity and performance of the firm as gender-diversity is considered an endogenous variable (Hermalin & Weisbach, 2001; Carter et al., 2003). For an instance, the probability of female executives might be influenced by some unobservable factors that can be involved in the error-term. Moreover, it can be possible that firms with good performance may recruit more women as they are more likely to have risky strategy in selection of management or board members and the direction of causality may be in opposite direction than we expect. Therefore, in order to deal with the issue of endogeneity, and possible reverse-causality, two-stage least squares (2SLS) regression has been implemented as an econometric tool of estimation. We estimate the following 2SLS regression model:

#### First stage:

$$\text{Female}_{i,t} = \alpha_0 + \alpha_1 \text{Industry Average Percentage of Female Board Members}_{j,t} + \alpha_2 \text{Gender Parity Index}_{k,t} + \theta X_{i,t} + \tau_j + \mu_{i,t}$$

#### Second stage:

$$\text{Firm Performance}_{i,t} = \beta_0 + \beta_1 \text{Instrumented Female}_{i,t} + \phi X_{i,t} + \tau_j + \varepsilon_{i,t}$$

In above given model, firms are represented by  $i$ , industry by  $j$ , country by  $k$  and time by  $t$ , where  $t$  time represents to the year 2014.  $\text{Firm Performance}_{i,t}$  is the financial performance of the firm in given year  $t$ .  $\text{Female}_{i,t}$  can be any the following proxies of firm  $i$  in the given  $t$  year: *Percentage of Female Executives, Percentage of Female Board-Members,*

*Female Executive Dummy, Female Board-Members Dummy, Female CEO Dummy, and Female CFO Dummy.*  $Instrumented\ Female_{i,t}$  is the fitted value of female indicator from first stage regression for each firm in the given year.  $X_{i,t}$  is the vector of control variables for each firm in the year of 2014, namely *Firm Size, Firm Age, Financial Leverage, Cash Holdings, Assets Growth, GDP Growth, Average Age of Executives, Average Age of Board Members, Percentage of Foreigner Executives, and Percentage of Foreigner Board Members.*  $\tau_j$  controls for the industry fixed effects<sup>19</sup> i.e. it captures the different unobservable characteristics those could affect the firms across sample.  $\mu_{i,t}$  is the error-term of the first-stage regression, whereas  $\mathcal{E}_{i,t}$  is the error-term of the second-stage regression.

To address the problem of endogeneity, we use two instrumental variables, that are expected to be correlated with the proportion of females and do not have any direct impact on the dependent variable (firm performance). In field of corporate governance, it is generally hard to get valid instrumental variables since the factors that are probably most linked with the endogenous variable are other governance characteristics that are already (or should be) included in the regressions as control variables (Adams & Ferreira, 2009). Therefore, we use following two firm industry-specific and country-level instrumental variable, namely *Industry Percentage of Female Board-Members* and *Gender Parity Index*. The former concerns average proportion of female board members at Industry level, based on the core business of the firm. This IV variable is suggested to affect the probability of females to reach at top-levels in each firm affiliated to that industry, as well as to promote and hire more females. As reported in previous studies (Jacobs & Schain, 2009), mentoring by females in top positions can assist and encourage other females to acquire skills required to be successful in their career too. The presence of females in top positions (having influential power) inside the organization is positively going to affect the career aspirations of young generation of female in lower positions and in general population. These arguments imply that higher proportion of female board members in specific industry should work as the motivational factors for other females and should be positively related to the proportion of females on management and board group of the firm in each industry. The second instrument i.e. *Gender Parity Index* in the country is a very important indicator of gender-equality awareness in terms of education where more proportion of educated females more chances of breaking ‘glass-ceiling’ and reaching to the top-level positions. In other words, when more females will be enrolled in primary and

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<sup>19</sup> We control only for industry fixed effects as we can’t use firm fixed effects due to cross-sectional nature of data.

secondary education<sup>20</sup>, there are greater possibility of females to compete with male counterparts and to get promoted. Therefore, it can be implied that higher values of Gender Parity Index should increase the possibility of females to be recruited and to reach in business organizations. In both cases, there are no theoretical argument to believe that these variables can directly influence the financial performance of the firm, however the propositions of appropriateness of instruments must be tested.

## 2.4 Descriptive Statistics

Table 2 provides the descriptive statistics for all variables of the model.

\*\*\*\*\*Insert Table 2 Here\*\*\*\*\*

The ROA (Return on Assets) is on average 0.040. The average proportion of female executives in a firm is around 15.7%, while 44.0% of firms have one or more female executives. The average proportion of female board members in a firm is around 13.6%, whereas 33.1% of firms have one or more female board members. Moreover, 1.3% of firms have female CFO, whereas 7.7% firms are managed by a female CEO.

In Table 3, the correlation matrix is represented for the variables defined above.

\*\*\*\*\*Insert Table 3 Here\*\*\*\*\*

The correlation matrix reports that the correlation coefficients were positive between gender diversity variables and firm performance, providing preliminary evidence in the support of our main hypothesis. With respect to the multicollinearity problem, the magnitude of correlation among explanatory variables is not very high, indicating that multicollinearity is unlikely to bias coefficients of estimation. Moreover, we also execute VIF test and find that our analysis is not threatened by this type of problem.

\*\*\*\*\*Insert Table 4 Here\*\*\*\*\*

Table 4 shows that between the pairs of sub-samples of firm-observations, the T-test mean comparison is always statistically significant for firm performance (i.e. ROA) variable.

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<sup>20</sup> Enrolment of females in primary and secondary education represents the social equality between males and females in the country. Moreover, the basic education ratio of females indicates talented females which are promoted to contribute in economic, business and social development of a country.

This proposes that there may be a link between financial performance of the firm and existence of female executives/board members. Though, the Table displays that, in general terms, there are several statistical significant differences in continuous control variables between the pairs of sub-samples. For example, in Panel A and Panel B, firms managed or governed by female executives and board members, respectively tend to be older but likely to have more cash reserves to catch more attractive growth opportunities when there is low cash flows and costly external financing in the capital market. In addition, firms managed/governed by female executives or board members tend to increase assets growth. Finally, these firms likely to have a more concentrated ownership structure.

The list of countries under analysis, according to the value of *Masculinity* index that is used to categorise between countries with high and low level of *Masculinity*, is shown in Table 5.

\*\*\*\*\*Insert Table 5 Here\*\*\*\*\*

The masculine nations in Europe are: in Germanic world (Austria and Switzerland); in the Latin world (Italy); in Eastern Europe (Hungary and Slovakia). On the other side, towards the feminine side, we find the 5 Latin countries (France, Spain, Portugal, Greece and Malta), 1 Anglo-Saxon nation (United Kingdom), 4 Germanic countries (Belgium, Luxembourg, Netherlands and Germany), 4 Nordic nations (Sweden, Norway, Iceland, and Finland) and Eastern countries (Bulgaria, Estonia, Poland, Romania, Turkey (a controversial country in Europe as it is trying to be the part of Europe), and Russian Federation). Furthermore, Latin countries present contrast scores like France, Spain, Portugal, Greece and Malta are moderately feminine culture whereas Italy is a masculine country. Same contrast has been found in Germanic world like Austria and Switzerland are quiet masculine country, while Germany shows moderately feminine culture.

## 2.5 Results

### 2.5.1 Main analysis

In this section, we report the preliminary findings of the regression analysis by implementing two models, the ordinary least squares (OLS) model and the two-stage least squares (2SLS) model. In case of all regressions' outcome of 2SLS model, we showed the second-stage regressions, however the first one is provided on request. The main independent

variables *Percentage of Female Executives*, *Percentage of Female Board Members*, *Female Executives Dummy*, *Female Board Members Dummy*, *Female CEO Dummy* and *Female CFO Dummy*, alternatively used, are the fitted values of female (i.e. gender diversity) indicator from the first-stage of regression.

In Table 6.1, we show the outcome for the main effects of gender-diversity on financial profitability of the firm.

\*\*\*\*\*Insert Table 6.1 Here\*\*\*\*\*

As mentioned above that for an instrumental variable to be valid, it must satisfy both exogeneity and identification assumptions, that is, it must not be correlated with the residual term and at the same time can describe the variation in the endogenous variable (female presence in management and board group). If we expect that our instrumental variables are valid, we would conclude that 2SLS results are reliable because both unobserved heterogeneity and endogeneity have been controlled in this technique. The F-tests statistics of the first stage regressions indicate that our instruments are always jointly significant to estimate the availability of females on management and board group. In addition, the economic impact of both instrumental variables about female representation on management and board group is also satisfactory. For instance, an increase by 1 percentage point of *Gender Parity Index* leads to an increase in of around 185 points of *Percentage of Female Executives* and 79 points of *Percentage of Female Board Members*. This value is indeed significant considering that the average fraction of females on the management and board group is about 15.7% and 13.6%, respectively.

Consequently, the instrumental variables pass the relevance criterion. Additionally, there is no justification to rely on in the fact why *Industry Average Percentage of Female Board-Members* and *Gender Parity Index* should directly influence the firm profitability. In fact, we generally find a statistically not-significant Hansen-J statistic, which identifies validity test of the overidentifying restriction of instruments. In this way, the instruments reasonably satisfy the exclusion criterion.

In Table 6.1, the results in columns 1-2 are reported from the ordinary least squares (OLS) regression. The results show that the coefficients' value of *Percentage of Female Executives*, and *Percentage of Female Board Members* are positive and in some cases, statistically significant at least at 5% level. This positive impact of gender diversity on firm performance is consistent while using the second more appropriate method of estimation for

this kind relationship. Using 2SLS method, in columns 3-4, the second stage regressions' results show that the coefficients of fitted value of *Percentage of Female Executives*, and *Percentage of Female Board Members* are positive and statistically significant at least at 1% level. It implies that female executives and board members seem to have a positive impact on the financial performance of the firm. Consequently, *Hypothesis 1* seems to be confirmed, inferring females, more ethical and diverse human capital source. Moreover, it implies that females on management and board group play a significant role in improving firm performance by reducing the propensity of executives' opportunism and effective governance.

\*\*\*\*\*Insert Table 6.2 Here\*\*\*\*\*

To test the robustness of the main results of this study, we again investigate the preliminary findings of the regression analysis by using alternative proxies of gender-diversity and implementing the two-stage least squares (2SLS) model. In case of all regressions' outcome of 2SLS model, we showed the second-stage regressions, however the first one is provided on request. In the regression models, the main independent variables *Female Executives Dummy*, *Female Board Members Dummy*, *Female CEO Dummy* and *Female CFO Dummy*, alternatively used, are the fitted values of female (i.e. gender diversity) indicator from the first-stage of regression. These results are consistent with Table 6.1 findings and confirm that the presence of female is positively linked with firm performance.

Now, we want to examine if national culture has any impact on the basic relationship that is just examined. Hofstede measures of national culture might partially explain the "geographical" patterns of managerial behavioural differences, especially in overconfidence. As Hofstede's *Masculinity* dimension captures the extent to which gender roles are separated and magnified, we assume that in countries where masculine values are over emphasized, female executives/board members will tend to be even less-confident. As a matter of fact, females in the masculine countries might not be as confident and competitive as males, so that these countries might represent a significant behavioural differences between males and females, even in the managerial context. Hence, Table 7.1 shows the results of regression analysis on the moderating effect of masculine culture on the relationship between female indicator and firm performance.

\*\*\*\*\* Insert Table 7.1 Here \*\*\*\*\*

From the first-stage regression (not tabulated), it is evident that both instruments remain to be significantly jointly correlated with gender diversity proxies. The F-test value reports that the instrumental model estimates the existence of female management/board group, with the same considerations made for the analysis in Table 6.1. Hence, these instruments are not too weak for valid inference and can satisfy the relevance criterion. More importantly, these instruments also plausibly satisfy again the exclusion restriction. Under the assumption of overidentification restrictions validity, the model is exactly identified in this case.

In columns 1-4, we implement the OLS regression and examine the moderating effect of culture by interaction between high-*Masculinity* score and gender diversity proxies. In these regressions, the coefficients on gender diversity are positive, coefficients on masculinity index are positive but the coefficients on interaction are negative and overall statistically significant at most 1% level. Thus, the *Hypothesis 2* seems to be validated. The results suggest that Females' level of overconfidence seems to be lower than male counterparts in high-*Masculinity* score countries, where there is maximum social role differentiation between males and females. Females might feel more uncomfortable, shy and less overconfident in masculine countries since they might be too "feminine" to perform well in male-dominated areas. In other words, it can be implied that it is possible that females, who are more less overconfident, even more in high masculine societies may become morally weak (as self-confidence is a basic key of an individual's success and improvement in personality) and contribute in reducing their efficiency to work effectively in highly male-dominated societies. It seems that the more ethical behaviour of females on management or board group may create problems and they are not confident (or strong) enough to motivate and compel other members to behave more ethically and socially to fulfil their functions more effectively. In summary, it would make sense to imagine that increasing females on management and board group have an adverse impact on firm performance as socially, they are not expected to do this kind of jobs and in addition, females also may not feel comfortable and confident to work in such atmosphere. The presence of females may be likely to reduce the firm performance as a results of higher agency costs and opportunism of executives.

\*\*\*\*\* Insert Table 7.2 Here \*\*\*\*\*

To test the robustness of Table 7.1 results, we re-estimate the OLS regression and examine the moderating effect of culture by interaction between high-*Masculinity* score and other proxies of gender diversity namely, *Female CEO Dummy* and *Female CFO Dummy*. The coefficients on gender diversity are positive, coefficients on masculinity index are positive but

the coefficients on interaction are negative and overall statistically significant at most 1% level. These findings are consistent with Table 7.1. So, we reconfirm the negative impact of national cultural factors on the degree of relationship between gender-diversity at management and board level and financial performance of the firm.

### 2.5.2 Robustness checks and supplementary analysis

To test the robustness of the results of Table 6.1, we provide evidence for the impact of gender diversity proxies on the firm performance.

\*\*\*\*\* Insert Table 8 Here \*\*\*\*\*

In Table 8 and Table 9, two more robustness checks are shown. In Table 8, the dependent variable, *Return on Sales (ROS)*, another proxy of performance has been used. It seems that coefficient values of gender-diversity proxies, instrumented by *Industry Percentage of Female Board Members* and *Gender Parity Index*, are positive and statistically significant. These findings are consistent with on the effect of on ROA.

\*\*\*\*\* Insert Table 9 Here \*\*\*\*\*

In Table 9, the dependent variable, *Return on Investment (ROI)*, another proxy of performance has been used. It shows that coefficient values of gender-diversity proxies, instrumented by *Industry Percentage of Female Board Members* and *Gender Parity Index*, are positive and statistically significant. These findings are also in line with on the effect of on ROA.

\*\*\*\*\* Insert Table 10 Here \*\*\*\*\*

Finally, in addition to the above-mentioned robustness checks, we also provide supplementary results based on two alternative independent variables based on CEO-duality mechanism. In Table 10, we present the results on the relationship between CEO-duality, Female CEO-duality and firm performance. It is widely acknowledged statement that CEO-duality tend to decrease the firm performance due to the increase in agency conflicts because in lack of separation of control and management, the CEO who is also chairman may start to



divert from shareholders' interest and make board information constrained. Hence, in case of CEO-duality, company board loses its independence and became unable to govern the firm in an effective manner. Whereas Female CEO-duality may have opposite impact on governance and overall performance of the firm. Consistent with the fact that females who are more ethical, altruistic and cooperative, would feel more responsive in terms of their duties towards the firm and less likely to be opportunistic. Therefore, female who will hold both titles of CEO and chairwoman of the company, would feel even more responsible and highly obliged to perform their duties effectively, especially in positions, which are generally considered a typical situation of opportunism. It can be expected that female holding both CEO and chairperson positions would even more influential to motivate and force management and board members to work effectively to obtain final mutual goal of firm. Therefore, it can be expected that higher level of ethical preferences, higher moral values and their altruistic behavior make female more influential to perform her duties more effectively without any selfishness to lead the management and board team on path of achieving mutual goal of the organization. In Table 10, columns (1-2) present the results using OLS whereas columns (3-4) presents the results using 2SLS regression method. The coefficients of *CEO-duality Dummy* are negative and statistically significant at most 5% level in both models. The coefficient of *Female CEO-duality Dummy* is negative and but not statistically significant. But using 2SLS regression technique, the coefficient of *Female CEO-duality Dummy* is positive and statistically significant at 5% level. The findings of Table 10 are consistent with the view that the presence of female overall improves the firm performance.

## 2.6 Conclusion

Over the last few decades, the phenomenon of gender-diversity has been attracting the interest of many scholars in the field of corporate governance. Although the past empirical studies remain controversial to explain the consequences of gender-diversity on the performance of companies. There are multiple theoretical perspectives which have been used to explain the possible effect of gender-diversity on firm performance. Among all, the agency perspective of Fama and Jensen (1983) and resource-based view of Barney (1991) are the most widely used. The objective of this article is to investigate the effect of female representation in management and board on the accounting performance of the firm, implementing latter theoretical aspects of corporate governance literature and theory of firm. Our primary

motivation to conduct this study is to verify this relationship at both board and management level using a cross-country database and contribute to the ongoing stream of promotion of females at higher-levels and break the glass-ceiling forever.

The results can be summarized as follows. Using a sample of 54,472 listed and unlisted European companies over the period of 2014, we find empirically that the percentage of female board members and executives does really affect the performance of firm positively. Moreover, the form of relationship between gender-diversity and firm performance is also moderated by the sociocultural factor of the nation in which the firm is located. We find that firms controlled by female board members seem to have a negative impact on firm performance in countries with a high masculinity score, according to Hofstede's cultural differences classification. In addition to this, our complementary analysis of gender leadership structure indicates that the female CEO duality reports a strong positive influence on firm performance in line with proponents of stewardship theory (Donaldson and Davis 1991, Mallette and Fowler 1992, Boyd 1995, and Peng et al. 2007), whereas CEO duality effect on firm performance remains negative which is consistent with findings of previous empirical studies (Berg & Smith, 1978; Rechner & Dalton, 1991; Pi & Timme, 1993; Fosberg & Nelson, 1999; Chen et al., 2005).

The outcomes of the study corroborate the theoretical predictions, suggesting that the percentage of female board members and percentage of female executives tend to affect firm performance positively. The findings are in line with agency perspective, suggesting that females who are known to be tough monitors, and more ethical in comparison to their male counterparts, are more likely to motivate and compel their counterparts on boards and improve the governing and controlling function. The presence of female executives (i.e. more ethical and effective controller in comparison to others) can be expected to inspire to work together as a team for the achieving the common objective of firm and improve the performance. The positive impact of gender-diversity on firm performance is also supported by another theory i.e. resource-based view which suggests that gender-diversity can be an effective source of sustained competitive advantage for the firm as the presence of female brings diversity in knowledge, ideas, information, and different experience than their male counterparts.

We extend the literature on the latter relationship by suggesting that the gender-differences are strongly determined by sociocultural factors of any nation. Particularly, we find that the influence of female on firm performance is displayed to be shaped by the national culture of the country. The gender role differences are more pronounced if the national culture encourages such differences. This effect is closely affected by the social culture of nation, in which the firm is operating as social cultural differences determine firm's behavior from one

nation to another. The findings are consistent with females being less overconfident, and more conservative than males, given that they might be less efficient to utilize their skills, knowledge as well as to protect their own ideas, and opinions and finally, plays a role to increase the degree of opportunism and agency conflicts, only if the presence of gender-role differences supported by nation.

Our complementary analysis adds support and novelty to prior empirical studies on the effects of gender-diversity on corporate performance. We suggest that female CEO-chair leadership may more likely to be good stewards of firm's resources and may more effectively contribute to improve firm performance. This finding is consistent with the view that female serving both roles of CEO and chairperson of board can work more effectively by reducing the managerial opportunism and CEO entrenchment due to their higher level of ethical behaviour, morality and greater universal concern, which may not let them to enjoy their power and positions at the cost of owners or shareholders. We support the view that the "dark side" of CEO duality, in terms of strong power concentration and managerial dominance, is less admissible in context of female CEO-chair by the intrinsic nature and attitude of women. Consistent with perspectives of stewardship theory, the "bright side" of CEO duality leadership is pronounced to enjoy the classic benefits of combined leadership through providing unity of direction, and of command as well as offers lower information costs (Brickley et al., 1997) by considering female as CEO-chair of firm. In terms of managerial implications, our findings highlight, also in this case, the prominent role of female representation in management and board of the corporation, reinforcing the women quota legislation and other relevant strategies to empower females and have a proper gender-balancing to improve overall governance and performance of the companies.

In future research, it will be remarkable to disentangle the firm-specific factors for the gender-unbalancing and go further in deep of human-specific features into the firm that could constraint female representation. Despite of the contribution of females, the growth rate of women in top level positions remains stagnant. The question rises- what are firm-specific factors which can effectively determine the gender-diversity in the firms. Similarly, it can be valuable to investigate the role of factors related to the average age of executives and members of the board, or cultural factors or even nationality that can constraint or amplify the voice of female into the firm. While it is equally essential to identify the drivers of gender diversity in management and board of directors to underline the real grounds of lower level of female representation and implement appropriate actions to handle this issue.

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## Tables

**Table 1 - Variable definitions and data sources**

| <b>Variables</b>  | <b>Description</b>  |
|---|---|
| <b><i>Performance Measures</i></b>                                |   |
| Return on Assets (ROA)  | Ratio of net income to total assets   |
| <b><i>Gender-Diversification Variables</i></b>                    |   |
| Percentage of Female Executives                                   | Percentage of female executives with respect to total executives in the firms   |
| Percentage of Female Board-Members                                | Percentage of female board members with respect to total board members in the firms   |
| <b><i>Other Measures of Gender Diversity</i></b>                  |   |
| Female Executive Dummy  | Dummy equals to 1 if proportion of female executives is greater than zero   |
| Female Board-Members Dummy  | Dummy equals to 1 if proportion of female board members is greater than zero  |
| Female CEO Dummy  | Dummy equals to 1 if the CEO is a female, and 0 otherwise   |
| Female CFO Dummy  | Dummy equals to 1 if the CFO is a female, and 0 otherwise   |
| CEO Duality Dummy   | Dummy equals to 1 if the CEO and Chairperson is the same person and 0 otherwise   |
| Female CEO Duality Dummy  | Dummy equals to 1 if the CEO and Chairperson of the firm is the same person and who is female, and 0 otherwise  |
| <b><i>Control Variables: Firm Characteristics</i></b>             |   |
| Firm Age  | Natural logarithm of firm age where firm age has calculated from date of incorporation  |
| Firm Size   | Natural logarithm of total assets   |
| Financial Leverage  | Ratio between financial debt and total asset  |
| Cash holdings   | Natural logarithm of cash & cash-equivalents  |
| Assets Growth   | Percentage variation of total assets from previous period   |
| Ownership   | Percentage of direct and indirect ownership of the top one largest shareholder  |
| <b><i>Control Variables: Governance Variables</i></b>             |   |
| Percentage of Foreigner Board Members                             | Percentage of foreigner board members with respect to total foreigner and domestic board members in the firm of each country  |
| Percentage of Foreigner Female Executives                         | Percentage of foreigner executives with respect to total foreigner and domestic executives in the firm of each country  |
| <b><i>Control Variables: Board/Management Characteristics</i></b> |   |
| Average Age of Executives   | Average age of executives' age in the firm  |
| Average Age of Board-Members                                      | Average age of board members' age in the firm   |
| <b><i>Control Variables: Macroeconomic Variable</i></b>           |   |
| GDP growth  | Annual percentage growth rate of GDP  |
| <b><i>Instrumental Variables</i></b>                              |   |
| GPI (Gender Parity Index)   | Gender parity index for gross enrolment ratio in primary and secondary education is the ratio of girls to boys enrolled at primary and secondary levels in public and private schools.  |
| Industry level Percentage of Female Board Members                 | Average of the percentage of female board members in Industry   |
| Industry level Percentage of Female Executives                    | Average of the percentage of female executives in Industry  |
| Industry frequency of CEO duality leadership                      | Sum of CEO duality firms divided by total number of firms in each industry  |
| Industry frequency of Female CEO duality leadership               | Sum of Female CEO duality firms divided by total number of firms in each industry   |
| Average Age of Board Members                                      | Average age of board members' age in the firm   |
| <b><i>Moderating Variable: Cultural Variable</i></b>              |   |
| Masculinity Dummy   | Dummy equal to 1 if Masculinity index > than its median value, and 0 otherwise. In the context of attitude surveys of more than 116,000 predominantly male IBM employees, Hofstede (1980, 1991) established national differences in cultural masculinity, reflected in different degrees of male role distinctiveness; the raw data for the masculinity index were collected between 1967 and 1973. |

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**Note:** The table reports the variables definitions. All the above-mentioned variables are the calculation of authors using Amadeus electronic database. The data for macroeconomic control variable has been collected from World Bank's website (source: World Bank national accounts data, and OECD National Accounts data files). The data for Instrumental variable has been gathered from World Bank's website (source: United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics) except the cultural variable that come from Hofstede (1980 and 1991).

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**Table 2 - Descriptive Statistics**

The Table reports descriptive statistics for continuous and dummy variables used in the empirical analysis. All the variables are defined in Table 1.

| <b>Panel A: Continuous Variables</b>                   |             |               |           |            |                   |                   |            |
|--|-------------|---------------|-----------|------------|-------------------|-------------------|------------|
| <b>Variables</b>                                       | <b>Mean</b> | <b>Median</b> | <b>SD</b> | <b>Min</b> | <b>Quartile 1</b> | <b>Quartile 3</b> | <b>Max</b> |
| Return on Assets (ROA)                                 | 0.040       | 0.027         | 0.105     | -0.504     | 0.002             | 0.077             | 0.511      |
| Percentage of Female Executives                        | 0.157       | 0.000         | 0.235     | 0.000      | 0.000             | 0.250             | 1.000      |
| Percentage of Female Board-Members                     | 0.136       | 0.000         | 0.245     | 0.000      | 0.000             | 0.200             | 1.000      |
| Average Age of Executives                              | 3.974       | 3.974         | 0.150     | 3.091      | 3.887             | 4.066             | 4.605      |
| Average Age of Board Members                           | 4.011       | 4.001         | 0.167     | 2.996      | 3.912             | 4.111             | 4.585      |
| Percentage of Foreigner Executives                     | 0.087       | 0.000         | 0.207     | 0.000      | 0.000             | 0.000             | 1.000      |
| Percentage of Foreigner Board Members                  | 0.144       | 0.000         | 0.284     | 0.000      | 0.000             | 0.167             | 1.000      |
| Firm Age (in years)                                    | 26.533      | 23.000        | 18.302    | 2.000      | 13.000            | 35.000            | 99.000     |
| Firm Size (in millions €)                              | 75.448      | 20.513        | 197.060   | 0.189      | 9.282             | 47.041            | 1358.795   |
| Financial Leverage                                     | 0.220       | 0.135         | 0.251     | 0.000      | 0.002             | 0.354             | 1.000      |
| Assets Growth  | 0.132       | 0.056         | 0.510     | -0.643     | -0.033            | 0.183             | 8.030      |
| Cash Holdings  | 6.374       | 6.680         | 2.283     | 0.148      | 5.088             | 7.927             | 10.860     |
| Ownership  | 0.810       | 1.000         | 0.264     | 0.000      | 0.550             | 1.000             | 1.000      |
| GDP Growth   | 1.224       | 1.348         | 1.467     | -0.444     | -0.444            | 2.940             | 4.069      |
| GPI (Gender Parity Index)                              | 0.995       | 0.991         | 0.011     | 0.886      | 0.986             | 1.004             | 1.028      |
| Industry Average Percentage of Female Board Members in | 0.076       | 0.072         | 0.026     | 0.000      | 0.055             | 0.092             | 0.319      |
| <b>Panel B: Dummy Variables</b>                        |             |               |           |            |                   |                   |            |
| Female Executive Dummy                                 | 0.440       | 0.000         | 0.496     | 0.000      | 0.000             | 1.000             | 1.000      |
| Female Board-Members Dummy                             | 0.331       | 0.000         | 0.471     | 0.000      | 0.000             | 1.000             | 1.000      |
| Female CEO Dummy                                       | 0.077       | 0.000         | 0.267     | 0.000      | 0.000             | 0.000             | 1.000      |
| CEO-Duality Dummy                                      | 0.007       | 0.000         | 0.084     | 0.000      | 0.000             | 0.000             | 1.000      |
| Female CEO-Duality Dummy                               | 0.001       | 0.000         | 0.028     | 0.000      | 0.000             | 0.000             | 1.000      |
| Female CFO Dummy                                       | 0.013       | 0.000         | 0.113     | 0.000      | 0.000             | 0.000             | 1.000      |

**Table 3 – Correlation matrix**

| No | Variables                             | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13    | 14     | 15    | 16    | 17    | 18 |
|----|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|----|
| 1  | ROA                                   | 1      |        |        |        |        |        |        |        |        |        |        |        |       |        |       |       |       |    |
| 2  | Percentage of Female Executives       | 0.019  | 1      |        |        |        |        |        |        |        |        |        |        |       |        |       |       |       |    |
| 3  | Percentage of Female Board-Members    | 0.028  | 0.443  | 1      |        |        |        |        |        |        |        |        |        |       |        |       |       |       |    |
| 4  | Female Executives Dummy               | 0.024  | 0.752  | 0.347  | 1      |        |        |        |        |        |        |        |        |       |        |       |       |       |    |
| 5  | Female Board Members Dummy            | 0.055  | 0.396  | 0.790  | 0.454  | 1      |        |        |        |        |        |        |        |       |        |       |       |       |    |
| 6  | Female CEO Dummy                      | -0.029 | 0.444  | 0.172  | 0.327  | 0.085  | 1      |        |        |        |        |        |        |       |        |       |       |       |    |
| 7  | Female CFO Dummy                      | -0.010 | 0.136  | 0.035  | 0.128  | 0.063  | 0.036  | 1      |        |        |        |        |        |       |        |       |       |       |    |
| 8  | Average Age of Executives             | -0.015 | -0.043 | -0.006 | -0.030 | -0.007 | 0.020  | 0.014  | 1      |        |        |        |        |       |        |       |       |       |    |
| 9  | Average Age of Board Members          | -0.048 | 0.001  | -0.044 | -0.018 | -0.103 | 0.122  | 0.007  | 0.533  | 1      |        |        |        |       |        |       |       |       |    |
| 10 | Percentage of Foreigner Executives    | -0.003 | -0.048 | -0.027 | -0.017 | 0.011  | -0.072 | -0.030 | -0.035 | -0.110 | 1      |        |        |       |        |       |       |       |    |
| 11 | Percentage of Foreigner Board Members | -0.019 | -0.023 | -0.073 | 0.043  | -0.054 | -0.065 | -0.013 | -0.065 | -0.104 | 0.653  | 1      |        |       |        |       |       |       |    |
| 12 | Firm Age                              | 0.016  | 0.069  | 0.037  | 0.144  | 0.057  | 0.059  | 0.062  | 0.197  | 0.213  | -0.068 | -0.025 | 1      |       |        |       |       |       |    |
| 13 | Firm Size                             | -0.116 | -0.030 | -0.053 | 0.086  | 0.033  | -0.007 | 0.003  | 0.016  | 0.013  | 0.086  | 0.097  | 0.082  | 1     |        |       |       |       |    |
| 14 | Financial Leverage                    | -0.241 | -0.024 | -0.015 | 0.006  | 0.023  | -0.034 | -0.037 | -0.012 | -0.032 | 0.088  | 0.000  | -0.108 | 0.179 | 1      |       |       |       |    |
| 15 | Assets Growth                         | 0.106  | -0.014 | -0.001 | 0.002  | 0.008  | -0.044 | -0.020 | -0.045 | -0.061 | 0.036  | 0.014  | -0.112 | 0.018 | 0.027  | 1     |       |       |    |
| 16 | Cash Holdings                         | 0.120  | 0.001  | 0.000  | 0.061  | 0.064  | -0.022 | 0.015  | -0.001 | -0.022 | 0.076  | 0.062  | 0.038  | 0.335 | -0.070 | 0.027 | 1     |       |    |
| 17 | Ownership                             | 0.007  | -0.040 | -0.046 | 0.038  | 0.006  | -0.112 | -0.008 | -0.118 | -0.189 | 0.142  | 0.211  | -0.078 | 0.174 | 0.017  | 0.021 | 0.055 | 1     |    |
| 18 | GDP Growth                            | 0.169  | -0.005 | 0.062  | 0.115  | 0.258  | -0.241 | -0.070 | -0.054 | -0.275 | 0.233  | 0.092  | -0.065 | 0.011 | 0.171  | 0.099 | 0.120 | 0.227 | 1  |

*Note:* We also tested for the potential multicollinearity among the independent variables using variance inflation factors (VIFs). The average VIF is 1.76, while the maximum value is 3.48, which is far below the generally employed cut-off of 10 (or, more cautiously, 5) for regression models. Thus, there is no problem of multicollinearity.

**Table 4 -T-test mean comparison between firms with and without executives/board members**

| <b>Panel – A</b>       |   |   |         |         |
|------------------------|---|---|---------|---------|
| Variables              | (Without Female Executive)<br>Group 1<br>(No. observations=30531) | (With Female Executives)<br>Group 2<br>(No. observations=23941) | T-test  | P-value |
| Return on Assets (ROA) | 0.038   | 0.043   | -5.648  | 0.000   |
| Firm Age               | 2.953   | 3.161   | -34.057 | 0.000   |
| Firm Size              | 9.961   | 10.194  | -20.123 | 0.000   |
| Financial Leverage     | 0.219   | 0.222   | -1.293  | 0.196   |
| Assets Growth          | 0.131   | 0.133   | -0.509  | 0.611   |
| Cash Holdings          | 6.251   | 6.530   | -14.196 | 0.000   |
| Ownership              | 0.801   | 0.821   | -8.880  | 0.000   |

  

| <b>Panel – B</b>   |  |   |         |         |
|--------------------|--|---|---------|---------|
| Variables          | (Without Female Board-Member)<br>Group 1<br>(No. observations=36437) | (With Female Board-Member)<br>Group 2<br>(No. observations=18035) | T-test  | P-value |
| Return on Assets   | 0.036  | 0.048   | -12.818 | 0.000   |
| Firm Age           | 3.016  | 3.103   | -13.438 | 0.000   |
| Firm Size          | 10.033   | 10.126  | -7.636  | 0.000   |
| Financial Leverage | 0.216  | 0.228   | -5.273  | 0.000   |
| Assets Growth      | 0.129  | 0.137   | -1.807  | 0.071   |
| Cash Holdings      | 6.271  | 6.581   | -14.918 | 0.000   |
| Ownership          | 0.809  | 0.812   | -1.358  | 0.174   |

**Table 5. List of countries according to the level of *Masculinity* index**

| <b>Countries with high Masculinity index</b>    | <b>Countries with low Masculinity index</b>   |
|---|---|
| Austria; Hungary; Italy; Slovakia; Switzerland. | Belgium; Bulgaria; Estonia; Finland; France; Germany; Greece; Iceland; Luxembourg; Malta; Netherlands; Norway; Poland; Portugal; Romania; Russian Federation; Spain; Sweden; Turkey; United Kingdom (U.K.). |

**Table 6.1- The impact of gender-diversity on firm financial performance**

This table shows OLS and the second stage of 2SLS regression results with return on assets (ROA) as dependent variable. In Column I and Column II, we present the estimation using OLS regression models and the variables *Percentage of Female Executives* and *Percentage of Female Board-Members* are the fitted values of female variables using robust standard errors. In Column III and Column IV, the variables *Percentage of Female Executives* and *Percentage of Female Board-Members* are the fitted values of female variables from the first stage regression of 2SLS estimation method. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*), or 1% (\*\*\*) is indicated.

| Explanatory Variables                 | ROA                  |                      |                                   |                      |
|---------------------------------------|----------------------|----------------------|-----------------------------------|----------------------|
|                                       | OLS method           |                      | IV (Instrumental Variable) method |                      |
|                                       | (1)                  | (2)                  | (3)                               | (4)                  |
| Percentage of Female Executives       | 0.004**<br>(0.029)   |                      | 0.070***<br>(0.000)               |                      |
| Percentage of Female Board-Members    |                      | 0.002<br>(0.301)     |                                   | 0.047***<br>(0.005)  |
| Average Age of Executives             | -0.005*<br>(0.064)   |                      | 0.001<br>(0.682)                  |                      |
| Average Age of Board Members          |                      | -0.001<br>(0.607)    |                                   | 0.002<br>(0.458)     |
| Percentage of Foreigner Executives    | -0.015***<br>(0.000) |                      | -0.012***<br>(0.000)              |                      |
| Percentage of Foreigner Board Members |                      | -0.013***<br>(0.000) |                                   | -0.010***<br>(0.000) |
| Financial Leverage                    | -0.103***<br>(0.000) | -0.103***<br>(0.000) | -0.102***<br>(0.000)              | -0.102***<br>(0.000) |
| Firm Age                              | 0.001**<br>(0.029)   | 0.001**<br>(0.029)   | -0.000<br>(0.718)                 | 0.001<br>(0.429)     |
| Firm Size                             | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000)              | -0.008***<br>(0.000) |
| Cash Holdings                         | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)               | 0.005***<br>(0.000)  |
| Assets Growth                         | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.020***<br>(0.000)               | 0.019***<br>(0.000)  |
| Ownership                             | -0.008***<br>(0.000) | -0.007***<br>(0.000) | -0.006***<br>(0.000)              | -0.005***<br>(0.009) |
| GDP Growth                            | 0.015***<br>(0.000)  | 0.015***<br>(0.000)  | 0.015***<br>(0.000)               | 0.014***<br>(0.000)  |
| Industry Fixed Effects                | Yes                  | Yes                  | Yes                               | Yes                  |
| Hansen J Statistic (p-value)          |                      |                      | 2.627<br>(0.105)                  | 12.182<br>(0.000)    |
| Kleibergen-Paap rk LM statistic       |                      |                      | 557.710<br>(0.000)                | 455.494<br>(0.000)   |
| Kleibergen-Paap Wald rk F statistic   |                      |                      | 285.207                           | 244.523              |
| Observations                          | 54472                | 54472                | 54472                             | 54472                |

**Table 6.2- The impact of gender-diversity on firm financial performance**

This table shows OLS and the second stage of 2SLS regression results with return on assets (ROA) as dependent variable. In Column I, II, III and IV, we present the estimation using OLS regression models and the variables *Female Executives Dummy*, *Female Board Members Dummy*, *Female CEO Dummy* and *Female CFO Dummy* are the fitted values of female variables using robust standard errors. In Column V, VI, VII and Column VIII, the variables *Female Executives Dummy*, *Female Board Members Dummy*, *Female CEO Dummy* and *Female CFO Dummy* are the fitted values of female variables from the first stage regression of 2SLS estimation method. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*) or 1% (\*\*\*) is indicated.

| Explanatory Variables                 | ROA                  |                      |                      |                      |                                   |                      |                      |                      |
|---------------------------------------|----------------------|----------------------|----------------------|----------------------|-----------------------------------|----------------------|----------------------|----------------------|
|                                       | OLS method           |                      |                      |                      | IV (Instrumental Variable) method |                      |                      |                      |
|                                       | (1)                  | (2)                  | (3)                  | (4)                  | (5)                               | (6)                  | (7)                  | (8)                  |
| Female Executives Dummy               | 0.000<br>(0.952)     |                      |                      |                      | 0.022***<br>(0.000)               |                      |                      |                      |
| Female Board Members Dummy            |                      | 0.001<br>(0.276)     |                      |                      |                                   | 0.029***<br>(0.000)  |                      |                      |
| Female CEO Dummy                      |                      |                      | 0.004***<br>(0.002)  |                      |                                   |                      | 0.048<br>(0.215)     |                      |
| Female CFO Dummy                      |                      |                      |                      | -0.004<br>(0.194)    |                                   |                      |                      | 0.159***<br>(0.000)  |
| Average Age of Executives             | -0.006**<br>(0.047)  |                      | -0.005**<br>(0.050)  | -0.006**<br>(0.047)  | -0.002<br>(0.561)                 |                      | -0.005<br>(0.105)    | -0.006**<br>(0.047)  |
| Average Age of Board Members          |                      | -0.001<br>(0.625)    |                      |                      |                                   | 0.004<br>(0.189)     |                      |                      |
| Percentage of Foreigner Executives    | -0.015***<br>(0.000) |                      | -0.015***<br>(0.000) | -0.015***<br>(0.000) | -0.012***<br>(0.000)              |                      | -0.014***<br>(0.000) | -0.014***<br>(0.000) |
| Percentage of Foreigner Board Members |                      | -0.013***<br>(0.000) |                      |                      |                                   | -0.009***<br>(0.000) |                      |                      |
| Financial Leverage                    | -0.103***<br>(0.000) | -0.103***<br>(0.000) | -0.103***<br>(0.000) | -0.103***<br>(0.000) | -0.102***<br>(0.000)              | -0.102***<br>(0.000) | -0.103***<br>(0.000) | -0.102***<br>(0.000) |
| Firm Age                              | 0.002**<br>(0.021)   | 0.001**<br>(0.033)   | 0.002**<br>(0.024)   | 0.002**<br>(0.017)   | -0.001<br>(0.427)                 | -0.000<br>(0.851)    | 0.001<br>(0.277)     | 0.000<br>(0.887)     |
| Firm Size                             | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.009***<br>(0.000)              | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000) |
| Cash Holdings                         | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)               | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  |
| Assets Growth                         | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.019***<br>(0.000)               | 0.020***<br>(0.000)  | 0.020***<br>(0.000)  | 0.020***<br>(0.000)  |
| Ownership                             | -0.008***<br>(0.000) | -0.007***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.009***<br>(0.000)              | -0.004**<br>(0.022)  | -0.006*<br>(0.051)   | -0.009***<br>(0.000) |
| GDP Growth                            | 0.015***<br>(0.000)  | 0.014***<br>(0.000)  | 0.015***<br>(0.000)  | 0.015***<br>(0.000)  | 0.014***<br>(0.000)               | 0.012***<br>(0.000)  | 0.017***<br>(0.000)  | 0.016***<br>(0.000)  |

| Industry Fixed Effects              | Yes   | Yes   | Yes   | Yes   | Yes                 | Yes                | Yes               | Yes                |
|-------------------------------------|-------|-------|-------|-------|---------------------|--------------------|-------------------|--------------------|
| Hansen J Statistic (p-value)        |       |       |       |       | 0.543<br>(0.461)    | 1.451<br>(0.228)   | 15.778<br>(0.000) | 3.806<br>(0.051)   |
| Kleibergen-Paap rk LM statistic     |       |       |       |       | 1587.177<br>(0.000) | 980.588<br>(0.000) | 77.570<br>(0.000) | 470.375<br>(0.000) |
| Kleibergen-Paap Wald rk F statistic |       |       |       |       | 855.375             | 544.990            | 39.598            | 212.053            |
| Observations                        | 54472 | 54472 | 54472 | 54472 | 54472               | 54472              | 54472             | 54472              |



**Table 7.1- The impact of gender-diversity on firm financial performance moderated by culture**

This table shows OLS and the second stage of 2SLS regression results with return on assets (ROA) as dependent variable. In Column I, and Column II, we present the variables *Percentage of Female Executives*, *Percentage of Female Board-Members* and interaction terms namely *Percentage of Female Executives\* High Masculinity Index Dummy* and *Percentage of Female Board Members\*High Masculinity Index Dummy* are the fitted values of female variables using robust standard errors. In Column III, and Column IV, the variables *Percentage of Female Executives*, *Percentage of Female Board-Members* and interaction terms namely *Percentage of Female Executives\* High Masculinity Index Dummy* and *Percentage of Female Board Members\*High Masculinity Index Dummy* are the fitted values of female variables from the first stage regression of 2SLS estimation method. Sub-samples are created according to the sample's third quartile values of *Masculinity index*. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*), or 1% (\*\*\*) is indicated.

| Explanatory Variables   | ROA                  |                      |                                   |                      |
|---|----------------------|----------------------|-----------------------------------|----------------------|
|   | OLS method           |                      | IV (Instrumental Variable) method |                      |
|   | (1)                  | (2)                  | (3)                               | (4)                  |
| Percentage of Female Executives                                       | 0.007***<br>(0.007)  |                      | 0.159***<br>(0.000)               |                      |
| Percentage of Female Executives*<br>High Masculinity Index Dummy      | -0.008**<br>(0.018)  |                      | -0.366***<br>(0.005)              |                      |
| Percentage of Female Board Members                                    |                      | 0.006**<br>(0.028)   |                                   | 0.503***<br>(0.000)  |
| Percentage of Female Board<br>Members*High Masculinity Index<br>Dummy |                      | -0.008**<br>(0.012)  |                                   | -1.101***<br>(0.000) |
| High Masculinity Index Dummy  | 0.009***<br>(0.000)  | 0.010***<br>(0.000)  | 0.067***<br>(0.001)               | 0.144***<br>(0.000)  |
| Average Age of Executives   | -0.005*<br>(0.057)   |                      | -0.010*<br>(0.078)                |                      |
| Average Age of Board Members  |                      | -0.003<br>(0.233)    |                                   | -0.003<br>(0.616)    |
| Percentage of Foreigner Executives                                    | -0.014***<br>(0.000) |                      | -0.008***<br>(0.008)              |                      |
| Percentage of Foreigner Board<br>Members                              |                      | -0.013***<br>(0.000) |                                   | -0.007<br>(0.040)    |
| Financial Leverage  | -0.103***<br>(0.000) | -0.104***<br>(0.000) | -0.101***<br>(0.000)              | -0.095***<br>(0.000) |
| Firm Age  | 0.002**<br>(0.020)   | 0.002**<br>(0.014)   | 0.000<br>(0.838)                  | 0.000<br>(0.860)     |
| Firm Size   | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000)              | -0.007***<br>(0.000) |
| Cash Holdings   | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)               | 0.006***<br>(0.000)  |
| Assets Growth   | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.019***<br>(0.000)               | 0.018***<br>(0.000)  |
| Ownership   | -0.008***<br>(0.000) | -0.006***<br>(0.000) | -0.008***<br>(0.000)              | -0.001<br>(0.848)    |
| GDP Growth  | 0.017***<br>(0.000)  | 0.017***<br>(0.000)  | 0.018***<br>(0.000)               | 0.013***<br>(0.000)  |
| Industry Fixed Effects  | Yes                  | Yes                  | Yes                               | Yes                  |
| Hansen J Statistic<br>(p-value)                                       |                      |                      | Exactly<br>Identified             | Exactly Identified   |
| Kleibergen-Paap rk LM statistic                                       |                      |                      | 54.522 (0.000)                    | 24.048 (0.000)       |
| Kleibergen-Paap Wald rk F statistic                                   |                      |                      | 27.294                            | 11.995               |
| Observations  | 54472                | 54472                | 54472                             | 54472                |

**Table 7.2- The impact of gender-diversity on firm financial performance moderated by culture**

This table shows OLS and the second stage of 2SLS regression results with return on assets (ROA) as dependent variable. In Column I, and Column II, we present the variables *Female CEO Dummy*, *Female CFO Dummy* and *interaction terms namely Female CEO Dummy\*High Masculinity Index Dummy* and *Female CFO Dummy\*High Masculinity Index Dummy* are the fitted values of female variables using robust standard errors. In Column III, and Column IV, the variables *Female CEO Dummy*, *Female CFO Dummy* and *interaction terms namely Female CEO Dummy\*High Masculinity Index Dummy* and *Female CFO Dummy\*High Masculinity Index Dummy* are the fitted values of female variables from the first stage regression of 2SLS estimation method. Sub-samples are created according to the sample's third quartile values of *Masculinity index*. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*) or 1% (\*\*\*) is indicated.

| Explanatory Variables                         | ROA                  |                      |                                   |                      |
|---|----------------------|----------------------|-----------------------------------|----------------------|
|   | OLS method           |                      | IV (Instrumental Variable) method |                      |
|   | (1)                  | (2)                  | (3)                               | (4)                  |
| Female CEO Dummy                              | 0.000<br>(0.908)     |                      | 0.936***<br>(0.000)               |                      |
| Female CEO Dummy*High Masculinity Index Dummy | 0.006*<br>(0.092)    |                      | -1.478***<br>(0.017)              |                      |
| Female CFO Dummy                              |                      | 0.001<br>(0.854)     |                                   | 1.023***<br>(0.000)  |
| Female CFO Dummy*High Masculinity Index Dummy |                      | 0.007*<br>(0.043)    |                                   | -49.582<br>(0.415)   |
| High Masculinity Index Dummy                  | 0.007***<br>(0.000)  | 0.008***<br>(0.000)  | 0.191***<br>(0.015)               | 0.113***<br>(0.000)  |
| Average Age of Executives                     | -0.006**<br>(0.043)  | -0.006**<br>(0.045)  | 0.026**<br>(0.065)                | -0.008*<br>(0.088)   |
| Average Age of Board Members                  |                      |                      |                                   |                      |
| Percentage of Foreigner Executives            | -0.014***<br>(0.000) | -0.014***<br>(0.000) | -0.009***<br>(0.052)              | -0.002<br>(0.624)    |
| Financial Leverage                            | -0.104***<br>(0.000) | -0.103***<br>(0.000) | -0.078***<br>(0.000)              | -0.104***<br>(0.000) |
| Firm Age                                      | 0.002**<br>(0.015)   | 0.002**<br>(0.011)   | 0.008***<br>(0.032)               | -0.007***<br>(0.003) |
| Firm Size                                     | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.011***<br>(0.000)              | -0.008***<br>(0.000) |
| Cash Holdings                                 | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.006***<br>(0.000)               | 0.004***<br>(0.000)  |
| Assets Growth                                 | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.024***<br>(0.000)               | 0.019***<br>(0.000)  |
| Ownership                                     | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.033***<br>(0.022)              | -0.014***<br>(0.020) |
| GDP Growth                                    | 0.017***<br>(0.000)  | 0.017***<br>(0.000)  | 0.044***<br>(0.000)               | 0.050***<br>(0.000)  |
| Industry Effects                              | Yes                  | Yes                  | Yes                               | Yes                  |
| Hansen J Statistic (p-value)                  |                      |                      | Exactly Identified                | Exactly Identified   |
| Kleibergen-Paap rk LM statistic               |                      |                      | 9.737 (0.002)                     | 1.000 (0.317)        |
| Kleibergen-Paap Wald rk F statistic           |                      |                      | 4.866                             | 0.500                |
| Observations                                  | 54472                | 54472                | 54472                             | 54472                |

**Table 8- Robustness test: The impact of gender-diversity on firm financial performance**

This table shows OLS and the second stage of 2SLS regression results with return on sales (ROS) as dependent variable (which is defined as ratio between net income and sales). In Column I, II, III, IV, V, and Column VI, we present the estimation using OLS regression models and the variables *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, *Female CFO Dummy*, *Percentage of Female Board-Members*, and *Female Board Members Dummy* are the fitted values of female variables using robust standard errors. In Column VII, VIII, IX, X, XI, and Column XII, the variables *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, *Female CFO Dummy*, *Percentage of Female Board-Members*, and *Female Board Members Dummy* are the fitted values of female variables from the first stage regression of 2SLS estimation method. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*) or 1% (\*\*\*) is indicated.

| Explanatory Variables                 | ROS                      |                     |                     |                     |                      |                      |   |                     |                    |                     |                     |                     |
|---------------------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|----------------------|---|---------------------|--------------------|---------------------|---------------------|---------------------|
|                                       | OLS method of regression |                     |                     |                     |                      |                      | IV (Instrumental Variable) method of regression |                     |                    |                     |                     |                     |
|                                       | (1)                      | (2)                 | (3)                 | (4)                 | (5)                  | (6)                  | (7)   | (8)                 | (9)                | (10)                | (11)                | (12)                |
| Percentage of Female Executives       | 0.005<br>(0.767)         |                     |                     |                     |                      |                      | 0.880***<br>(0.000)                             |                     |                    |                     |                     |                     |
| Female Executives Dummy               |                          | 0.001<br>(0.895)    |                     |                     |                      |                      |   | 0.364***<br>(0.000) |                    |                     |                     |                     |
| Female CEO Dummy                      |                          |                     | 0.033***<br>(0.003) |                     |                      |                      |   |                     | 0.583**<br>(0.025) |                     |                     |                     |
| Female CFO Dummy                      |                          |                     |                     | 0.012<br>(0.487)    |                      |                      |   |                     |                    | 1.331***<br>(0.000) |                     |                     |
| Percentage of Female Board-Members    |                          |                     |                     |                     | 0.020<br>(0.119)     |                      |   |                     |                    |                     | 0.417***<br>(0.004) |                     |
| Female Board Members Dummy            |                          |                     |                     |                     |                      | 0.024***<br>(0.008)  |   |                     |                    |                     |                     | 0.291***<br>(0.000) |
| Average Age of Executives             | 0.037<br>(0.158)         | 0.037<br>(0.163)    | 0.037<br>(0.160)    | 0.037<br>(0.167)    |                      |                      | 0.143***<br>(0.000)                             | 0.121***<br>(0.000) | 0.046*<br>(0.093)  | 0.031<br>(0.258)    |                     |                     |
| Average Age of Board Members          |                          |                     |                     |                     | 0.055**<br>(0.016)   | 0.058**<br>(0.012)   |   |                     |                    |                     | 0.092***<br>(0.001) | 0.111***<br>(0.000) |
| Percentage of Foreigner Executives    | -0.057**<br>(0.028)      | -0.057**<br>(0.027) | -0.056**<br>(0.030) | -0.057**<br>(0.028) |                      |                      | -0.022<br>(0.424)                               | -0.040<br>(0.131)   | -0.038<br>(0.169)  | -0.036<br>(0.172)   |                     |                     |
| Percentage of Foreigner Board Members |                          |                     |                     |                     | -0.041***<br>(0.003) | -0.039***<br>(0.004) |   |                     |                    |                     | -0.015<br>(0.364)   | -0.008<br>(0.609)   |

|                                     |           |           |           |           |           |           |           |           |           |           |           |           |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Financial Leverage                  | -0.227*** | -0.227*** | -0.228*** | -0.227*** | -0.232*** | -0.231*** | -0.198*** | -0.185*** | -0.234*** | -0.211*** | -0.222*** | -0.219*** |
|                                     | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Firm Age                            | 0.043***  | 0.043***  | 0.042***  | 0.043***  | 0.042***  | 0.041***  | 0.022***  | 0.019**   | 0.030***  | 0.022***  | 0.034***  | 0.025***  |
|                                     | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.009)   | (0.022)   | (0.001)   | (0.006)   | (0.000)   | (0.001)   |
| Firm Size                           | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | -0.000    | 0.003     | -0.014*** | 0.001     | 0.001     | 0.004     | -0.003    |
|                                     | (0.986)   | (0.996)   | (0.975)   | (0.986)   | (0.935)   | (0.991)   | (0.546)   | (0.004)   | (0.765)   | (0.747)   | (0.412)   | (0.558)   |
| Cash Holdings                       | 0.019***  | 0.019***  | 0.019***  | 0.019***  | 0.018***  | 0.018***  | 0.018***  | 0.018***  | 0.017***  | 0.016***  | 0.018***  | 0.017***  |
|                                     | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Assets Growth                       | 0.054***  | 0.054***  | 0.054***  | 0.054***  | 0.054***  | 0.054***  | 0.062***  | 0.060***  | 0.059***  | 0.055***  | 0.055***  | 0.057***  |
|                                     | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Ownership                           | -0.028*   | -0.028*   | -0.026    | -0.029*   | -0.020    | -0.019    | -0.009    | -0.047*** | 0.019     | -0.040**  | -0.009    | -0.005    |
|                                     | (0.072)   | (0.071)   | (0.103)   | (0.070)   | (0.227)   | (0.243)   | (0.609)   | (0.005)   | (0.480)   | (0.015)   | (0.581)   | (0.742)   |
| GDP Growth                          | 0.026***  | 0.026***  | 0.027***  | 0.026***  | 0.026***  | 0.024***  | 0.046***  | 0.052***  | 0.047***  | 0.027***  | 0.027***  | 0.004     |
|                                     | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.391)   |
| Industry Fixed Effects              | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       |
| Hansen J Statistic                  |           |           |           |           |           |           | 11.860    | 0.144     | 32.997    | 4.730     | 32.911    | 1.697     |
| (p-value)                           |           |           |           |           |           |           | (0.001)   | (0.705)   | (0.000)   | (0.010)   | (0.000)   | (0.193)   |
| Kleibergen-Paap rk LM statistic     |           |           |           |           |           |           | 228.390   | 550.510   | 62.032    | 521.984   | 265.217   | 868.715   |
|                                     |           |           |           |           |           |           | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Kleibergen-Paap Wald rk F statistic |           |           |           |           |           |           | 116.034   | 289.002   | 31.702    | 236.091   | 143.750   | 497.731   |
| Observations                        | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     | 35559     |

**Table 9- Robustness test: the impact of gender-diversity on firm financial performance**

This table shows OLS and the second stage of 2SLS regression results with return on investment (ROI) as dependent variable (which is defined as ratio between earnings before interest and tax (EBIT) and total assets). In Column I, II, III, IV, V, and Column VI, we present the estimation using OLS regression models and the variables *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, *Female CFO Dummy*, *Percentage of Female Board-Members*, and *Female Board Members Dummy* are the fitted values of female variables using robust standard errors. In Column VII, VIII, IX, X, XI, and Column XII, the variables *Percentage of Female Executives*, *Female Executives Dummy*, *Female CEO Dummy*, *Female CFO Dummy*, *Percentage of Female Board-Members*, and *Female Board Members Dummy* are the fitted values of female variables from the first stage regression of 2SLS estimation method. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*) or 1% (\*\*\*) is indicated.

| Explanatory Variables                 | ROI                      |           |           |           |           |           |   |           |           |           |           |           |
|---------------------------------------|--------------------------|-----------|-----------|-----------|-----------|-----------|---|-----------|-----------|-----------|-----------|-----------|
|                                       | OLS method of regression |           |           |           |           |           | IV (Instrumental Variable) method of regression |           |           |           |           |           |
|                                       | (1)                      | (2)       | (3)       | (4)       | (5)       | (6)       | (7)   | (8)       | (9)       | (10)      | (11)      | (12)      |
| Percentage of Female Executives       | 0.003*                   |           |           |           |           |           | 0.062***  |           |           |           |           |           |
|                                       | (0.081)                  |           |           |           |           |           | (0.001)   |           |           |           |           |           |
| Female Executives Dummy               |                          | 0.000     |           |           |           |           |   | 0.020***  |           |           |           |           |
|                                       |                          | (0.662)   |           |           |           |           |   | (0.001)   |           |           |           |           |
| Female CEO Dummy                      |                          |           | 0.003**   |           |           |           |   |           | 0.036     |           |           |           |
|                                       |                          |           | (0.030)   |           |           |           |   |           | (0.397)   |           |           |           |
| Female CFO Dummy                      |                          |           |           | -0.015*** |           |           |   |           |           | 0.149***  |           |           |
|                                       |                          |           |           | (0.000)   |           |           |   |           |           | (0.002)   |           |           |
| Percentage of Female Board-Members    |                          |           |           |           | 0.001     |           |   |           |           |           | 0.041**   |           |
|                                       |                          |           |           |           | (0.588)   |           |   |           |           |           | (0.032)   |           |
| Female Board Members Dummy            |                          |           |           |           |           | 0.000     |   |           |           |           |           | 0.025***  |
|                                       |                          |           |           |           |           | (0.934)   |   |           |           |           |           | (0.001)   |
| Average Age of Executives             | -0.016***                | -0.016*** | -0.016*** | -0.016*** |           |           | -0.010***                                       | -0.013*** | -0.016*** | -0.016*** |           |           |
|                                       | (0.000)                  | (0.000)   | (0.000)   | (0.000)   |           |           | (0.006)   | (0.000)   | (0.000)   | (0.000)   |           |           |
| Average Age of Board Members          |                          |           |           |           | -0.012*** | -0.012*** |   |           |           |           | -0.009*** | -0.007**  |
|                                       |                          |           |           |           | (0.000)   | (0.000)   |   |           |           |           | (0.005)   | (0.020)   |
| Percentage of Foreigner Executives    | -0.014***                | -0.014*** | -0.014*** | -0.014*** |           |           | -0.011***                                       | -0.012*** | -0.014*** | -0.013*** |           |           |
|                                       | (0.000)                  | (0.000)   | (0.000)   | (0.000)   |           |           | (0.000)   | (0.000)   | (0.000)   | (0.000)   |           |           |
| Percentage of Foreigner Board Members |                          |           |           |           | -0.011*** | -0.011*** |   |           |           |           | -0.008*** | -0.008*** |
|                                       |                          |           |           |           | (0.000)   | (0.000)   |   |           |           |           | (0.000)   | (0.000)   |
| Financial Leverage                    | -0.089***                | -0.089*** | -0.089*** | -0.089*** | -0.090*** | -0.090*** | -0.088***                                       | -0.089*** | -0.090*** | -0.088*** | -0.089*** | -0.089*** |
|                                       |                          |           |           |           |           |           |   |           |           |           |           |           |

|                         |           |           |           |           |           |           |           |           |           |           |           |           |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                         | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Firm Age                | -0.003*** | -0.003*** | -0.003*** | -0.002*** | -0.003*** | -0.003*** | -0.004*** | -0.005*** | -0.003*** | -0.004*** | -0.003*** | -0.004*** |
|                         | (0.000)   | (0.000)   | (0.000)   | (0.001)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.001)   | (0.000)   | (0.000)   | (0.000)   |
| Firm Size               | -0.014*** | -0.014*** | -0.014*** | -0.014*** | -0.014*** | -0.014*** | -0.013*** | -0.014*** | -0.014*** | -0.014*** | -0.013*** | -0.014*** |
|                         | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Cash Holdings           | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  | 0.006***  |
|                         | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Assets Growth           | 0.013***  | 0.013***  | 0.013***  | 0.013***  | 0.013***  | 0.013***  | 0.014***  | 0.013***  | 0.014***  | 0.014***  | 0.013***  | 0.014***  |
|                         | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Ownership               | -0.006*** | -0.006*** | -0.006*** | -0.006*** | -0.004**  | -0.004**  | -0.004*   | -0.006*** | -0.004    | -0.007*** | -0.003    | -0.002    |
|                         | (0.001)   | (0.001)   | (0.001)   | (0.001)   | (0.011)   | (0.011)   | (0.054)   | (0.001)   | (0.256)   | (0.000)   | (0.158)   | (0.264)   |
| GDP Growth              | 0.013***  | 0.013***  | 0.013***  | 0.013***  | 0.012***  | 0.012***  | 0.013***  | 0.012***  | 0.014***  | 0.014***  | 0.012***  | 0.010***  |
|                         | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Industry Fixed Effects  | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       |
| Hansen J Statistic      |           |           |           |           |           |           | 2.231     | 0.182     | 10.928    | 2.079     | 7.867     | 1.060     |
| (p-value)               |           |           |           |           |           |           | (0.135)   | (0.669)   | (0.001)   | (0.149)   | (0.005)   | (0.303)   |
| Kleibergen-Paap rk LM   |           |           |           |           |           |           | 557.710   | 1587.177  | 77.570    | 470.375   | 455.494   | 980.588   |
| statistic               |           |           |           |           |           |           | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Kleibergen-Paap Wald rk |           |           |           |           |           |           | 285.207   | 855.375   | 39.598    | 212.053   | 244.523   | 544.990   |
| F statistic             |           |           |           |           |           |           |           |           |           |           |           |           |
| Observations            | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     | 54472     |

**Table 10 - Supplementary test: the impact of gender-diversity on firm financial performance**

This table shows OLS and second stage of 2SLS regression results with Return on Assets (ROA) as the dependent variable. In column I and column II, the results are shown from OLS regression whereas in column III and column IV, *CEO-Duality Dummy* and *Female CEO-Duality Dummy* represent the fitted values of female CEO duality indicator from the first-stage regressions. Since CEO-duality is considered as a governance mechanism, we used different instruments for this kind of variable. Particularly, we used *Industry frequency of CEO duality leadership, as a sort of probability in that industry to have CEO duality*, *Industry frequency of Female CEO duality leadership, as a sort of probability in that industry to have CEO duality*, and *Average Age of Board Members* as instruments to deal with endogeneity problem of Duality variable. The *Average Age of Board Members* is expected to negatively relate with CEO-duality. CEO-duality represents the concentration of board leadership and management power in one person. Aged board members would be likely to oppose leadership and management power in one person because they prefer to govern the firm in effective way without any interferences and without being constrained by any powered leader. Moreover, age factor makes the person more rigid on their traditional way of thinking, with a lower propensity to accept any changes, even a female as leader. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. See Table 1 for the definitions of all explanatory variables. The numbers in parentheses represent the p-values. The significance at 10% (\*), 5% (\*\*) or 1% (\*\*\*) is indicated.

| Explanatory Variables               | ROA                  |                      |                                   |                      |
|-------------------------------------|----------------------|----------------------|-----------------------------------|----------------------|
|                                     | OLS method           |                      | IV (Instrumental Variable) method |                      |
|                                     | (1)                  | (2)                  | (3)                               | (4)                  |
| CEO-Duality Dummy                   | -0.016**<br>(0.010)  |                      | -0.318*<br>(0.075)                |                      |
| Female CEO-Duality Dummy            |                      | -0.013<br>(0.511)    |                                   | 2.530***<br>(0.004)  |
| Average Age of Executives           | -0.005*<br>(0.062)   | -0.005*<br>(0.050)   | -0.000<br>(1.000)                 | -0.011***<br>(0.004) |
| Financial Leverage                  | -0.103***<br>(0.000) | -0.103***<br>(0.000) | -0.105***<br>(0.000)              | -0.101***<br>(0.000) |
| Firm Age                            | 0.002***<br>(0.007)  | 0.002***<br>(0.007)  | 0.002***<br>(0.003)               | 0.001<br>(0.294)     |
| Firm Size                           | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000)              | -0.009***<br>(0.000) |
| Cash Holdings                       | 0.005***<br>(0.000)  | 0.005***<br>(0.000)  | 0.005***<br>(0.000)               | 0.005***<br>(0.000)  |
| Assets Growth                       | 0.019***<br>(0.000)  | 0.019***<br>(0.000)  | 0.019***<br>(0.000)               | 0.020***<br>(0.000)  |
| Ownership                           | -0.009***<br>(0.000) | -0.009***<br>(0.000) | -0.010***<br>(0.000)              | -0.010***<br>(0.000) |
| GDP Growth                          | 0.014***<br>(0.000)  | 0.014***<br>(0.000)  | 0.015***<br>(0.000)               | 0.014***<br>(0.000)  |
| Industry fixed effects              | Yes                  | Yes                  | Yes                               | Yes                  |
| Hansen J Statistic (p-value)        |                      |                      | 0.475<br>(0.491)                  | 3.396<br>(0.065)     |
| Kleibergen-Paap rk LM statistic     |                      |                      | 50.575<br>(0.000)                 | 15.218<br>(0.000)    |
| Kleibergen-Paap Wald rk F statistic |                      |                      | 25.442                            | 7.629                |
| Observations                        | 54472                | 54472                | 54472                             | 54472                |

## Appendix-1

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**List of sample countries**

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| <b>No</b> | <b>Country</b> | <b>No</b> | <b>Country</b>     |
|-----------|----------------|-----------|--------------------|
| 1         | Austria        | 14        | Netherlands        |
| 2         | Belgium        | 15        | Norway             |
| 3         | Bulgaria       | 16        | Poland             |
| 4         | Estonia        | 17        | Portugal           |
| 5         | Finland        | 18        | Romania            |
| 6         | France         | 19        | Russian Federation |
| 7         | Germany        | 20        | Slovakia           |
| 8         | Greece         | 21        | Spain              |
| 9         | Hungary        | 22        | Sweden             |
| 10        | Iceland        | 23        | Switzerland        |
| 11        | Italy          | 24        | Turkey             |
| 12        | Luxembourg     | 25        | United Kingdom     |
| 13        | Malta          |           |                    |

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## Chapter III

### Corruption, gender and corporate value in Europe

*Corruption, fraud and illicit activities have become worldwide the major impediment on economic, political and social development. Recent striking figures about the costs of corruption at country level indicate that this phenomenon has settled in the heart of European economy with noteworthy consequences. While the empirical analysis is mainly based on measures of corruption at country level, this is the first empirical research work, out of some studies related to survey, based on a large dataset measuring corruption at businesses level. Using a cross-sectional data of 2,789 listed companies across 34 European countries, the aim of this study is to highlight the impact of corruption, embedded inside the firm on corporate performance. Empirically, it is investigated what happens to firm performance considering whether: (i) the firm is involved in corrupted activities, (ii) the members of the board of director or members of the management, also at top level, are involved in such illegal matters, (iii) there is any gender effect, related in the way corruption affects firm performance. The empirical findings suggest that firm corruption acts as a vibrant constraint to its short-term as well as long-run performance. The involvement of the firm in corruption and any sort of illicit or dishonest practices decreases the accounting and market performance, being also harmful to firm's growth opportunities. Finally, we present evidence that corrupt behavior of females is even more severe for firm performance.*

“We can’t fight corruption unless we fight of speaking up. People must feel supported and protected, that’s why we need EU-wide whistle-blower protection to raise standards across Europe, so that individuals can come forward without fear of retaliation.” - Carl Dolan, Director of Transparency International EU<sup>21</sup>.

“You live in a society where everybody steals. Do you choose to steal? The probability that you will be caught is low, because the police are very busy chasing other thieves, and even if you do get caught, the chances of your being punished severely for a crime this is common are low. Therefore, you too steal.”- Mauro (1998).

### **3.1 Introduction**

According to MacMillan Dictionary, “corruption can be defined as dishonest, fraudulent or illegal behavior by officials or people in positions of power, especially when they accept money in exchange for doing things for someone”. Although, corruption is a worldwide phenomenon that induces negative effects on various domains of a society, in the last fifteen years, it is becoming strictly related to dishonest businesses. Until 1980s, corruption has remained mainly the subject matter of sociology, political science, history and criminal laws. However, since then, the growing evidence of corruption consequences on economic performance have effectively earned a careful attention of economists, researchers and government worldwide. The earlier studies on corruption accentuate the role of ineffective government institutions and economic policies to invite and increase the level of corrupt activities (Abed & Gupta, 2002). Since the rise of twenty first century, corruption and corporate frauds have grown up as one of the most challenging factors for the economic, political, legal, and social development of the countries. At present time, corruption is no more just a matter of ethics. Simply, it is exorbitant to have a huge loss to the economic, social and political system and to their sustainable development.

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<sup>21</sup> Transparency International, the global coalition against corruption, EU Office-  
<http://www.transparencyinternational.eu/2016/11/fear-of-speaking-out-against-corruption-shows-need-for-eu-whistleblower-law/>

Recently, according to the global survey report<sup>22</sup> of Transparency International, corruption has been identified as one of the most vital issues facing the world today (Global Corruption Barometer, 2013). The World Bank estimates state that every year, the amount of money paid in bribes is almost 1 trillion USD (World Bank, 2004) and now, current estimates of global cost of bribe corruption has increased to 2 trillion USD, approximately 2% of global GDP (International Monetary Fund, 2016). Daniel Kaufmann, an economist that had also served as the world bank institute's director, reports that corruption is an obstacle not only for developing countries but also a great challenge for rich developed nations, coining the following evocative phrase: "Fighting corruption is a global challenge" (World Bank, 2004). De facto, corruption has become so widespread that it seems almost implausible to find a single newspaper without having some headline highlighting the alleged corruption issues (Global Corruption Barometer, 2013).

Corruption, *latu sensu* defined, has been the subject matter of the front pages' headlines of popular business press, drawing the attention of many scholars, economists, investors, policy-makers and government towards the pervasiveness and subtle effects of corporate scams that happens inside the firm<sup>23</sup>. Apart from severe corporate scandals, many other corporations, their executives and board of directors were caught engaging in unethical, criminal and illicit routines such as tax evasion, accounting frauds, money laundering, bribery (or kickbacks), the sale of harmful items, and overly large executive bonuses. In one sense, a considerable amount of literature has started to dedicate their research to explore the significance of corporate governance to mitigate the level of corruption, whereas relatively, a little attention has been attributed to explore the severity of corruption in terms of economic costs (Gaviria, 2002), happening due to the presence of corrupt behaviors in all types of economic activities.

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<sup>22</sup> So far, it is the biggest global survey study, conducted by Transparency International, a leading coalition against corruption. It covers 114,000 people across 107 countries to study the people's direct experiences with bribery as well as their willingness to stop corruption. One of the major findings of this report state that political parties (which is considered as the pillars of any democracy) are the most corrupt institution, followed by the police. In addition, more than one in four people around the world report having paid a bribe and more than half of person perceive the rise in the level of corruption in the last two years.

<sup>23</sup> For instance, Enron Scandal (energy-trading corporation, 2001), WorldCom Scandal (telecommunication company, 2002), Tyco Scandal (security systems company, 2002), HealthSouth Scandal (largest publicly traded healthcare company, 2003), Lehman Brothers Scandal (Global financial services firm, 2008), Parmalat Scandal (multinational dairy and food corporation, 2003), Royal Ahold scandal (world's largest international retail grocery and food service, 2003), Swissair scandal (international airline, 2001), Satyam scandal (software company, 2009), Toshiba scandal (multinational conglomerate corporation, 2015), and recently, Volkswagen emission scandal (world's leading manufacturer of automobiles and commercial vehicles, 2015) along with Fiat Chrysler emission scandal (automobile manufacturer, 2017). To see more: January 12, 2017 in Bloomberg news at link <https://www.bloomberg.com/news/articles/2017-01-12/fiat-chrysler-plunges-on-report-epa-to-allege-emissions-cheating>

In recent time, a book of Zingales (2012) analyzed the nowadays problem of crony capitalism, describing an economy in which success in business depends on unethical and even illegal behaviors, to overcome higher competition by searching for easier solutions based on cheating, hiding information and close relationships between business people and government officials. In a sort of misunderstanding of the role of relational capital, as intangibles sustaining value creation process, managers and entrepreneurs look for favoritism in the distribution of legal permits, government grants or government support for hiding unethical behaviors, special tax breaks, or something similar. It is the work of Zingales that raised our concern for the corporate role of corruption or, in general, fraudulent, illegal or unethical behaviors of firms.

The theoretical and empirical literature (Dyck et al. 2010, Dyck et al. 2013) spread a light on this serious global issue, presenting evidence on the whistle-blowers of corporate frauds and economic cost of such frauds, respectively. Since, it has been widely acknowledged fact about corruption that it is very difficult to measure due to its illegal and secretive nature. In this direction, the latter studies are very prominent to get better insights on the issue in the corporate world. On one side, for example, using a sample of 216 cases of alleged corporate frauds, Dyck et al. (2010) did an extensive reading of each fraud's history and identified who are the subjects involved in the disclosure of these frauds. According to Dyck et al. (2010), after deep investigation of corporate fraud cases, the outcome indicates to the incapability of the supervisory bodies (both internal and external) failing to detect, punish and prevent such large scale corporate scandals. More surprisingly, the Dyck et al. (2010) find that the subjects which blow the whistle against frauds are either an employee (17% of cases), non-financial market regulators (13%), or the media (13%). Hence, it is apparently clear that the internal governance and management of firm do not take active participation in detecting these frauds. It can also be implied that not only the management but also the members of the board of directors are the "part of the game", otherwise complicit in these kinds of dishonest activities. On the other side, the paper of Dyck et al. (2013) stirs up the curiosity as well as concern for corporate fraud effects on social and economic development. By taking advantage of a natural experiment created by Arthur Andersen's demise, the former authors find the evidence that the probability of a firm engaging in corporate fraud in any given year is 14.5% and the estimate the costs of these corporate frauds and find that fraud destroys 20.4% of enterprise value. These evidence

highlights the seriousness (in terms of economic costs) and consistency (in terms expected number of fraudulent events every year) of this global issue.

After a brief review of the studies of Dyck et al. (2010) and Dyck et al. (2013), it can be noticed that in real, the issue of corruption is much nastier than its imagination as it lies in the roots of companies. It has been seen in Dyck et al. (2010) sample of alleged fraud cases that board group (who monitor and regulate the firm) and the management (who manages the firm) both are less likely to highlight the internal issues of firm for sake of self-interest, risk of reputation damage, loss of designation and legal penalties. It refers to the significance of board and management as internal (also individual) units of firm in exploring the effects of corruption on economic value. In existing literature, at country-level, the study of the effects of corruption on economic value has become a fervent topic of discussion, whereas firm-level study of corruption remains still limited.

The literature about corruption impact on growth, and economic performance of country primarily can be divided into two strands. First stream of literature advocates that corruption is detrimental to the economic growth, innovation and investment (Shleifer & Vishny, 1993; Mauro, 1995; Kaufmann & Wei, 1999; Mo, 2001; Méon & Sekkat, 2005; Svensson, 2005; Aidt, 2009), supporting to the “sand the wheels” of commerce hypothesis. For example, Shleifer & Vishny (1993) argue that corruption is much more harmful and costly to economic development than any other sister activity such as taxation, because the demands of secrecy in corrupt activities shift the investments away from the most valuable projects into sufficiently useless projects, if latter project propose better option for secret corruption. Bribery, a most popular form of corruption, increases the transaction costs due to uncertainty and secrecy nature of corrupt transactions (Shleifer & Vishny, 1993). In this direction, Mauro (1995) conducted first systematic cross-country empirical analysis for 58 countries to investigate the relationship between corruption (measured as degree to which business transactions involve corruption and graft payments) and investment and found that corruption decreases the investment level thereby economic growth of the country. Kaufmann & Wei find that there is a positive relationship between firm bribe payments and management time wasted with bureaucrats, and the cost of capital. Kaufmann and Wei suggest that bureaucrats have discretionary power along with a given regulation and corruption prone officials can usually customize the nature and amount of harassment on the company to extract maximum level of bribe. Kaufmann & Wei (1999) argue

that “efficient grease<sup>24</sup> hypothesis holds on a critical assumption<sup>25</sup> which should not be taken for granted”. Consistent with Mauro (1995), Mo (2001) find that corruption (measured by Transparency International Corruption Perceptions Index) has negative effects on the growth rate (real GDP), the level of human capital and private investment. Méon & Sekkat (2005) report that corruption has a detrimental effect on both investment and growth. Méon & Sekkat, argue that the negative effects of corruption tend to be worsen if the quality of governance deteriorate. Contrary to above-mentioned evidence, Leff (1964), Huntington (1968) and Acemoglu and Verdier (1998) among a few others argue that corruption might improve the economic growth of the nation, supporting the positive view that corruption can work as lubricant (or oil) for the wheels of stiff government thereby improving the efficiency of the system. This view of corruption enforces the benefits of corrupt practices (e.g. bribe payments) to deal with hectic bureaucratic procedures, rigid bylaws and malfunctioning government institutions. In case of country-level effects of corruption on economic growth, the hypothesis “sand the wheels” of commerce has dominated.

There has been a dearth of research investigating the relationship between firm-level corruption and financial performance. Prior evidence at firm-level are limited, mixed and mostly empirical findings use either firm-level survey data or country-level survey data to analyze the effects of corruption on firm performance of the firm. Van Vu et al. (2016), Williams et al. (2016), Athanasouli and Goujard (2015), Ayaydın and Hayaloglu (2014), Faruq et al. (2013), Athanasouli et al. (2012), Wang and You (2012), De Rosa et al. (2010), Li et al. (2008), Claessens et al. (2008), Fisman and Svensson (2007), Kimuyu (2007), McArthur and Teal (2002), Gaviria (2002), Tanzi and Davoodi (2000), are some empirical studies which investigate the impact of various forms of corruption (e.g. bribery, administrative corruption) on productivity, growth, and financial performance. It is worthy to mention here that all these above mentioned empirical studies use survey and perception based data to measure corruption. For instance, using World Bank Enterprise Survey data of firms across 132 developing countries, Williams et al. (2016) argue that bribery payments result in high sales growth and productivity. Athanasouli and Goujard (2015) focus on the regional-level survey data based corruption

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<sup>24</sup> “The bribery leads to lower effective red tape” hypothesis has been labelled as “efficient grease” theory (Kaufmann & Wei, 1999).

<sup>25</sup> The red tape or regulatory burden (license, tax, contracts, delays and so on) are assumed as exogeneous i.e. independent of the incentive for officials to accept bribes.

measure to determine the impact of corruption on productivity and management quality of firms, operating in manufacturing sector of Central and Eastern Europe. Gaviria (2002) uses Latin American private firms' survey data to empirically examine the relationship between corruption and crime effects on sales growth, investment and employment growth. Gaviria suggests that corruption and crime substantially damage the firm competitiveness and argues that it is very unlikely to have any positive effects of corruption and crime. Ayaydin and Hayaloglu (2014) using a panel data of 41 Turkish companies in manufacturing industry, study the effects of country-level corruption on firm growth and show that corruption has positive impact on the growth of private companies. Claessens et al. (2008) using a sample of Brazilian firms, examine the association of the political connections of firms as a specific proxy of corruption with future firm-specific favours. Claessens et al. find firms that offer higher campaign contributions to winning political parties in elections get preferential access to external finance as political favour as well as these firms enjoy higher stock returns around the announcement of election results.

There are mainly two limitations of the existing empirical studies on the relationship between firm-level corruption and financial performance. First, mostly empirical work employs survey data to construct the firm-level corruption measures and faces the potential problem of respondents' perception bias across survey questions (Kaufmann & Wei, 1999). Second, in prior empirical studies on corruption effects, the country-level corruption proxies (e.g. control of corruption, corruption perceptions index (CPI)) have been widely used to analyse corruption, and fraud effects on firm performance. Undoubtedly, the country-level corruption measures are salient proxies to determine its effects on the economic outcomes (growth, investment and development) of country. However, for the analysis of corruption effects on firm performance, it must be measured at firm-level to have better estimation of corporate effects of corruption. Since, the firm-level corruption is intrinsically associated with the corrupt or dishonest behaviours of the individual units of firm (i.e. executives and board of directors), it will be plausible to scrutinize the role of gender in determining way of firm level corruption effects on corporate performance, lying at the core of different behavioural approach across gender towards corrupt or dishonest activities. The two pioneering empirical studies of Dollar et al. (1999, 2001), and Swamy et al. (2001) unfold the debate on investigation of the relationship between gender and corruption, showing that the higher level of women representation in parliament lowers the level of corruption (Dollar et al., 1999, 2001), and women are less likely to tolerate corruption

as well as they are less involved in bribery than their male counterparts (Swamy et al., 2001). In the same lane of research, there are few other empirical studies (Torgler & Valev, 2006; Sung et al., 2012; Breen et al., 2016) and experimental studies (Lambsdorff & Frank, 2011; Frank et al., 2011; Rivas, 2013) which shed light on the role of gender in determining corrupt behaviours. In a very recent paper, using a firm-level data on corruption, Breen et al. (2016) find that women are associated with lower level of corruption in companies- female-owned businesses are less prone to the incidence of bribery. Following the above-mentioned lane of research work on the association of gender with corruption level, and another ongoing debate on the issue of gender equality, a plausible question arises here- what are consequences of corruption on performance if females are corrupt or dishonest?

Over the period of last fifteen years, corruption has been suggested as one of the “hot” topics and nowadays strongly damages the economic wealth worldwide. It will be compelling to investigate how this subject can be related to another issue of gender-diversity that is, predominantly advocated to boost the economic wealth. Although these are two streams of research that are individually receiving a great attention of the business community, the academia, as well as by media, but so far, these two issues have not yet well studied in terms of reciprocal interaction. The study of both topics at the same time will lead us to shed light on the way female, that main literature suggests providing a more ethical (Beltramini et al., 1984; Chonko & Hunt, 1985; Jones & Gautschi, 1988; Betz et al., 1989; Peterson et al., 1991; Ruegger & King, 1992; Whipple & Swords, 1992; Borkowski & Ugras, 1998) and positive (Carter et al., 2003; Erhardt et al., 2003; Farrell & Hersch, 2005; Campbell & Mínguez-Vera, 2008; Francoeur et al., 2008; Dezsö & Ross, 2012) contribution to the businesses, is able to affect the way corruption influence firm performance.

The objective of this study is to fill the above-mentioned gap in literature. Specifically, we intend to verify, empirically whether with the aspirations to increase profitability, any efforts in corruption activities by firms, its board of directors, or executives (also senior executives) create barriers for others in the market to safeguard corporate competitive position, and overwhelm the competitors. To accomplish the purpose of this study, we use a cross-sectional data sample of 2,789 European listed firms concerning 34 countries for the period of 2015. First, we examine the effects of corruption, referred to the firm as whole, on corporate financial performance. To extend analysis on the relationship between the corruption and corporate



performance, we investigate the role of corruption concerning each single individual unit inside the firms, both in the management and the board of directors. Although the firm is considered as a separate legal entity, it is required to be managed and governed by groups of individuals (e.g. managers/executives, board of directors). The extent of corruption specific to these individual units may provide better insights to analyse the corporate corruption effects. As we have notified in the study of Dyck et al. (2010) and many real-life examples, it seems very evident that the monitoring and managing functions of board of directors and executives, respectively, are neither any more effective, nor in line with value creation process, and their behaviours are biased by corruption, in the sense that managers and directors involved in corruption are not anymore able to effectively serve their tasks. Thus, as second research issue, we investigate the effect of corrupt board members (as first individual unit) on firm performance, and then, we explore the impact of executives' corruption (as second individual unit) on firm performance.

Our empirical analysis goes in deep on the role of corporate corruption investigating one specific dimension of corruption i.e. the extent of political exposure of individual units, and then considering the role of gender in conditioning the effect of corruption on financial performance. Motivated by the work of Zingales (2012), the role of political exposed firms or individual units inside the firms is analysed to verify the relevance of this specific kind of corruption. In recent years, the literature on the valuation of political connections for firm value is emerging (Li et al., 2008). The proponents of political connections often argue that firm's political connectedness offers several benefits to improve the firm performance. First of all, it allows the firms securing favourable regulatory conditions in terms of knowledge and close friendships with policy makers and experience in dealing government or legal proceedings (Agarwal & Knoeber, 2001). Moreover, it facilitates the preferential treatment by government in form of easy access to resources such as bank loans or natural materials, tax benefits (or discounts), and regulatory benefits (Faccio, 2006). Apart from potential benefits available for politically connected firms, such political connections could also generate costs to firm, in terms of firm's financial and/or non-financial resources devoted to keep going this connection providing gifts, support to the political parties and similar. Politically connected individuals also extract rents from firms in exchange of their support in generating favourable external linkage (Shleifer & Vishny, 1994). Since, it is widely acknowledged that companies are fascinated towards the incentives of these

political relationships, it is essential to investigate the role of politically exposed firms as whole, and executives / board members on financial performance of the firm.

According to Financial Action Task Force (FATF), a politically exposed person (PEP) is an individual who is or has been entrusted with a prominent public function. It could be a senior official of political party, a senior executive of a foreign government-owned company or immediate family member of PEP. These individuals hold influential positions and keep power to formulate and manipulate the important decision policies. In line with agency theory, we argue that firms managed or governed by political exposed persons (executives and/or board members) may be more likely to exacerbate problem of opportunism and agency conflicts. Moreover, it may undermine the quality of the management and/or board of directors as these executives and/or board members may not be fully dedicated to delivering the services to the firm as well as may prefer to extract heavy rents from company with respect to their positions in the government and legal system and increase the costs of firm. These are people that have personal attitude to make decisions according to possibility to have favour, promoting much effort in avoiding and overpassing any competitive comparison.

In addition, to further scrutinize the role of corruption, it is considered the way personal attitude of people involved in the decision processes inside the firm, in terms of gender diversity, can affect the role of corruption in shaping firm performance. Gender, being one of the most important dynamics of human behaviour, could play a significant role in understanding different magnitude of firm corruption on corporate performance. Indeed, specific behavioural features (e.g. gender) of people working into the firm can have different propensity to run for corrupt activities. It is considered that female have typically higher ethical standards (Beltramini et al., 1984; Chonko and Hunt, 1985; Jones & Gautschi, 1988; Betz et al., 1989; Peterson et al., 1991; Ruegger & King, 1992; Whipple & Swords, 1992; Borkowski & Ugras, 1998) and more risk averse attitude (Schubert, 1999; Croson & Gneezy, 2009) than men. Thus, we examine whether women that are widely known as more ethical, more risk averse and less corrupt than men create some differences in terms of female corruption effects to firm performance, investigating this relationship between corrupt female board members (also corrupt female executives) and the financial performance of the firm. This analysis contributes to the corporate governance and gender-diversity literature combining principal-agent framework and gender-differences literature. Firms with corruption may be more likely to have problem of information asymmetry

due to secretive and informal nature of corrupt or dishonest activities. Similarly, the opportunistic behaviour of corrupt board members and executives will promote the agency conflicts and reduce governance as well as management quality. In addition, to explore corrupt behaviours of firm individual units (i.e. board and management members), gender-specific corruption consequences should be considered. In line with existing gender-differences literature which implies that females and males are systematically different in terms of their behaviours, it can be assumed that behavioural differences will not only affect their perceptions about corrupt, criminal or dishonest activities but also reflect their choice. By nature, females are not suitable for the corrupt or dishonest activities. In general, they prefer honest and highly ethical behaviour, but if they are involved in any corrupt or dishonest activities, they are not able to deal with and so such corruption became even more negative for firm performance. Therefore, there would be twofold effects of corruption on corporate performance. The first negative effect is related to what we mentioned earlier, while the second one concerns to incapability of female to manage corruption. We argue that female amplifies this negative effect of corruption because female involved in corrupt or dishonest activities, becomes more nervous, fearful and less confident and may be more likely to increase the probability that activity will fail in the presence of high risk of punishment, fines and fire out, and damage the performance of the firm. Hence, it can be implied that firm-level corruption as whole, individual unit corruption in form of board and management and finally, gender-specific corrupt behaviours all encourage the level of information asymmetry, behavioural opportunism, and malfunctioning of governance and management whereby the firm faces many types of costs such as resources misallocation, low productivity, reputation costs and low level of growth opportunities, and decreases its performance. The main empirical findings of this chapter are in line with evidence of the macro-level study of Mauro (1995), and firm-level studies of Gaviria (2002), Athanasouli and Goujard (2015), Athanasouli et al. (2012), De Rosa et al. (2010) and Faruq et al. (2013) that support “sand the wheels” of commerce perspective of corruption effects.

This empirical chapter has four value added features. First, we use corruption measures which are based on the information of publicly detected sanction, enforcement, PEP or adverse media cases of corrupt, dishonest, unethical and illegal behaviours. This unique data has been collected from Orbis database, which employs all the publicly detected corruption, fraud and illegal act cases to develop this unique information set about firm as whole, its board members

and management. This sort of data also provides newness to our study because so far, no research study has used this type of information since its availability in 2015. Second, we have focused on corruption at board and management level, which did not yet receive enough attention from scholars in corruption literature and it could help us to get better understanding on corporate corruption consequences. Third, we investigate the effect of corruption on both short-term and long-term performance of the firm value. The short-term performance (mainly captured by accounting performance) is based on asset-in-place allowing to look at the past-consolidated competitive advantage the firm got until now, whereas long-term performance (captured by the core of firm's economic value) is growth opportunities with a far look at the sustainability of the firm competitiveness. Finally, this is first study which jointly analyses two prominent ongoing issues of corruption and gender to investigate the association of gender specific corruption with firm performance based on gender-differences in corrupt behaviour.

The chapter is organized as follows: In Section 2, we review the previous literature, real life examples of corruption, empirical evidence on the effects of corruption on economic value of firm and develop the research hypotheses. Section 3 explains the sample and research methodology used in the analysis. Section 4 reports the descriptive statistics. In Section 5 describes the main findings. Finally, Section 6 presents the conclusion.

## **3.2 Literature Review and Hypothesis Development**

### *3.2.1 Corruption definitions*

Corruption is an ancient notion and it has long roots in the history. Dating back to the fourth century B.C., Kautilya<sup>26</sup> (an economist, philosopher, and the founder of Maurya Empire- prime minister of grandfather of an Indian king -the great Ashoka) has described about this issue in his ancient book "Arthashastra"- (Bardhan, 1997):

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<sup>26</sup> Kautilya was also known as Vishnugupta and Chanakya. He is considered as the pioneer of the field of political science and economics in India and his work is also regarded as an important precursor to classical economics- Wikipedia source.

“Just as it is impossible not to taste the honey (or the poison) that finds itself at the tip of the tongue, so it is impossible for a government servant not to eat up, at least, a bit of king’s revenue. Just as fish moving under water cannot possibly be found out either as drinking or not drinking water, so government servants employed in the government work cannot be found out (while) taking money (for themselves)”- (Bardhan 1991, pp. 1320)

Homogenous to any other form of behavior, it is believed that corruption is a very elusive, complex and multidimensional phenomenon (Theobald, 1990). Corruption has been defined in numerous ways. In practice, it can be viewed from ethical, social, legal, philosophical, and political aspects. Although it is not easy to define this issue precisely, the most widely accepted and common definition of corruption refers to all the activities in which the power of public office is exploited for the private benefits in such a way that contravenes the rules of the game (Jain, 2001). According to broader perspective of corrupt, dishonest or criminal behavior, certain illegal activities such as fraud, money laundering, drug trades, kickbacks, bribes, and black market are associated with corruption, however these activities do not constitute in above mentioned public corruption definition, since these activities do not involve the use of public power (Jain, 2001). There are few other standard definitions which are common in use: According to the dictionary of Law- “corruption can be defined as the act of an official or fiduciary person who unlawfully and wrongfully uses his station or character to procure some benefit for himself or for another person, contrary to duty and the rights of others”. On Wikipedia – corruption is defined as a form of dishonest or unethical conduct by a person entrusted with a position of authority, often to acquire personal benefit. Huntington (1968) defines- Corruption is the behaviour of public bureaucrats which diverges from accepted norms to serve their private ends. Nye (1967) describes- Corruption is the behaviour which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence. So far, all the above-mentioned definitions depend upon the public sphere which is recognisably distinct from private domain (Theobald, 1990).

In line with definition provided by International Country Risk Guide, published by Political Risk Service Group, used in papers as Faruq et al. (2013, pp. 119), corruption “is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, ‘favors-for-favors’, secret party funds, and suspiciously close ties between politics

and business”. Following MacMillan dictionary and International Country Risk Guide definition, we define-corruption is a kind of illegal, unethical and wicked behaviour which abuses his/her authority, power and position to flourish his/her interest at the cost of other individuals because of personal interest, self-satisfaction, competition, jealous, and aspiration of status gain. This includes such behaviour as illicit activities, cheating, bribery, tax evasion, money laundering, fraud, environmental and other types of crimes, forgery, and misappropriation among other corrupt practices. Among all the above-mentioned corruption relevant activities, bribery is one of the most popular forms of corruption which can be defined as- dishonestly or illegally persuade (someone) to act in one’ favour by a gift of money or other inducement (Oxford dictionary). Since a long time, bribery has been used as a tool of getting the things done by others. In history, many bribe cases have been detected. For example, Ralph Lauren Corporation (a leading clothing retailer) in year 2013, was found to pay bribes or gifts to officials to avoid customs inspections and related paper work<sup>27</sup>; Kellogg Brown & Root in year 2009 (the largest engineering and construction firms) was declared a guilty of paying bribes to Nigerian officials to win extensive construction contracts in violation of Foreign Corrupt Practices Act (FCPA)<sup>28</sup>; BAE systems in year 2007 (a multinational defence, security and aerospace company) was alleged for paying bribes in relation to its business in Saudi Arabia; and Siemens in year 2008 (largest manufacturing and electronics company)<sup>29</sup> was alleged of paying bribes in order to secure their contracts and some of the executive board members have been found guilty of this corruption. These abovementioned real-world examples enumerate how common is corrupt, dishonest or illegal behavioural activities in the corporate world to fulfil some requirements of business.

### *3.2.2 Theoretical background*

The Principal-agent theory is probably one of most widely implemented approaches of neo-institutional economics which portrays the potential unfair conduct of the two actors entitled as principal and agent (Braun and Guston, 2003) as well as throws light upon the social connection between foremost and agent who are involve in exchange of resources. In organizational

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<sup>27</sup> To see more: go on the link <http://businessethicscases.blogspot.it/2014/02/ralph-lauren-16-million-bribery-case.html>

<sup>28</sup> See on: <http://www.investopedia.com/financial-edge/0512/the-biggest-bribe-cases-in-business-history.aspx>

<sup>29</sup> To see more: go on the link <http://www.nytimes.com/2008/12/21/business/worldbusiness/21siemens.html>

surroundings, the principals (e.g. owners or shareholders) are those which delegate resources, tasks and responsibilities to the agents (e.g. executives or managers) to act on behalf of them. In line with principal-agent literature, the aforesaid actors are hypothesized to be rational and they always seek out to maximize their utilities corresponding to their preferences. Such conduct of two cooperative parties may expand the probability of dishonest and unlawful actions. Essentially, the most widely discussed problems in this agency relationship are moral hazard and adverse selection. In new institutional economics, these problems are outlined as “opportunism<sup>30</sup>” where individuals are self-interested and work to maximize their private wealth. Since the agents seek their interest with guile, they may always take advantage of information they have and probably may conceal the essential information from principal to shrink work load, to achieve objectives set by their principals, to obtain preferred positions among several other private benefits (Braun and Guston, 2003). In line with above-mentioned rationales, it implies that agents’ opportunistic behavior encourages them to pursue self-interest with guile or dishonest activities such as lying, cheating and stealing (Williamson, 1985). According to the study of Zahra et al. (2005), dishonesty angle of management refers to intentionally cover-up their unfair, unethical and irresponsible moves from the arbitrators (or monitors and controllers) of their performance.

In organizational settings, corporate governance plays an important role to monitor and control the functions of the business. To control the agency problem between managers and shareholders, the company board works like a control and monitoring mechanism. The board of directors are hired by the shareholders to control the opportunistic behaviors of managers as well as to ensure that the managers are working to maximize shareholders’ wealth. According to agency perspective, the board of directors are the monitors of managers’ actions and have responsibilities and powers to control the discretionary actions of managers. Nowadays, the agency problems have become a serious concern for company governance when the board members start to behave opportunistically and deteriorate governance system of company. The board opportunism develops where few board members become self-interest seekers and start to take advantage of their powers and positions.

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<sup>30</sup> Opportunism is a subtle and pervasive condition of human nature with which study of the economic organization must be actively concerned.

There are many real-life cases which can be attributed to board opportunism where many board members have been found guilty of accepting kickbacks from management or outsiders (such as vendors of business) and favoring their actions against the stakeholders' interest of the company. For example, two Costco (a wholesale corporation) pharmacy directors are charged with professional misconduct. According to Canadian national news<sup>31</sup> on Nov. 22, 2016, two directors of Costco pharmacy have been charged with professional misbehavior for an alleged kickbacks scheme in which drug companies have paid money to directors to get their medications stocked at retail chain and the Ontario College of Pharmacists says both directors- "contravened a provincial law" in Ontario (a province in Canada). These corruption relevant issues suggest that opportunistic behavior is no more limited to management but the board members, are also the part of the game in organizational corruption.

Consistent with Zahra et al. (2005), it may be assumed that opportunistic individuals are likely to misuse the firm's resources for their personal gains and may conceal the crucial information from the observers. This kind of situation will drive the agency problem along with information asymmetry and constitute various costs like - lower productivity by misallocation of company resources and human capital, lower- level of transparency, lower-level of investment, lack of trust, poor quality governance, and environmental issues or absence of corporate social responsibility.

In real world examples, the companies (e.g. Volkswagen, 2015 and Fiat Chrysler, 2017) who are alleged of involving in corrupt behaviors, have been found to behave opportunistically. These companies have made a choice to spend money on buying technology to avoid the issues in laboratory pollutants' emissions test of vehicles rather than investing money to decrease the level of pollutants' emission. We imagine fraud or corruption allegations did not only affect company performance in the market but also reduce their social credit ratings. In this direction, Athanasouli and Goujard (2015) argue that corruption deteriorates the management practices in manufacturing firms thereby reduces its productivity. Athanasouli and Goujard also advise that corruption imposes to lower level of R&D investment, weakens management quality via lack of trust. Further, Athanasouli & Goujard highlight that managerial practices are most of the time in charge for the consequences of corruption on firm efficiency and performance.

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<sup>31</sup> To see more: link <https://www.thestar.com/news/canada/2016/11/22/costco-directors-charged-with-misconduct.html>



### *3.2.3 Volkswagen, and Fiat Chrysler: the pollutants emission cases in the automotive sector*

In corporate world, there are many recent real-life examples which shed light on the corporate misbehavior towards rules, legislations, corporate code of conduct, environmental health and safety for sake of prompting private benefits. The recent and limelight Volkswagen (emissionsgate or dieselgate) scandal in 2015 is one of the cases of corporate misbehavior by companies. Volkswagen is a leading automobile company in Germany and it is also the second largest automobile company in the world. This company sold approximately 9.92 million diesel cars all over the world in the year of 2014. At the time of manufacturing of these cars, the company intentionally installed the software in these cars for showing the lower level of pollution during car tests. Particularly, the company has deliberately programmed turbocharged direct injection (TDI) diesel engines to activate certain emissions controls (e.g. nitrogen oxides (NO<sub>x</sub>)) only at the time of laboratory emissions testing and violated the Clean Air Act. This programming technology with diesel cars engines allowed the company to falsify the original NO<sub>x</sub> emission limits of cars to meet the U.S. standards of vehicles' NO<sub>x</sub> emission in the air. The Volkswagen scandal indicates to the awareness over the higher levels of pollution, being emitted by all vehicles manufactured by a wide range of car makers. The pollutants emission by vehicles are used to exceed the legal emission standards of real world driving conditions. In this manner, the company cheated its stakeholders (e.g. consumers, shareholders, government, employees, investors and others) and this misbehavior was harming environment and contributing to the serious issue of global warming. Another example indicates to the very recent case of Fiat Chrysler, it is a multinational automotive group. This company is an Italian-controlled multinational corporation and in present time, it is world's seventh automobiles' manufacturer. In the early month of 2017, the company has been investigated by U.S. justice department because it was accused of violating environmental emission limits (i.e. pollution laws) with its diesel vehicles and allowing to its vehicles to raise the pollution level on the roads. According to Bloomberg<sup>32</sup> news on January 13, 2017, it has been found that Fiat Chrysler used technology from Germany's Robert Bosch GmbH, which is already under the investigation for its role in

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<sup>32</sup> To see more go to the link: <https://www.bloomberg.com/news/articles/2017-01-13/fiat-chrysler-said-to-face-u-s-criminal-emissions-investigation>

providing software to Volkswagen car maker. These two above mentioned cases who implemented almost similar approach to cheat the society and exploit the environment protection rules, set the example of common behavioral trend of the companies, operating in same industry.

These companies who are alleged of involving in corrupt behaviors, set the example of corporate opportunistic behavior and as result, companies have made a choice to spend money on buying technology to avoid the issues in laboratory pollutants' emissions test of vehicles rather than investing money to decrease the level of pollutants' emission. The Volkswagen scandal is the outcome of ambitions of Martin Winterkorn (CEO), who wanted a successful business at any cost however, he headed towards a huge loss and reputational damage to the company. The governance role seems completely missing in this case, either board of directors were also the part of the game or did not want to blow the whistle against company.

#### *3.2.4 Empirical evidence and hypothesis development*

The study of corruption and its consequences on economic performance has received a lot of attention from broad spectrum of researchers, economists and policy-makers. Despite of a great deal of theoretical and empirical literature on corruption, apparently mostly empirical studies have been devoted to investigating its impact on macroeconomic performance indicators whereas firm-level evidence persists limited. Until recently, a big pool of academic research using firm-level data, has emphasized the relation between corruption and growth (e.g. Tanzi & Davoodi, 2000; Fisman & Svensson, 2007; Kimuyu, 2007; Wang & You, 2012 and Ayaydın & Hayaloglu, 2014). In this section of chapter, we review the main literature on firm-level evidence which reveal influence of corruption impact on firm performance and other related aspects of performance (e.g. Gaviria, 2002; McArthur and Teal, 2002; Claessens et al., 2008; De Rosa et al., 2010; Athanasouli et al., 2012; Faruq et al., 2013; Athanasouli & Goujard, 2015; Van Vu et al., 2016; Williams et al., 2016). For example, the paper of Gaviria (2002), using a survey data of private companies of Latin America, the author assesses the effects of corruption and crime on the economic outcomes such as sales, investment and employment growth of the firm. Gaviria also investigates the influence of bribery and illegal payments made by firms on bureaucratic interference. His evidence supports the arguments that the corruption and crime are negatively affecting the firm competitiveness and stresses that it is very unlikely to have any kind of positive

effects and shows that the negative association between corruption and firm growth is consistent even after controlling for firm characteristics and country fixed effects. Similarly, in the context of Africa, McArthur & Teal (2002) investigate the extent of corruption as a determinant of firm productivity. MaArthur & Teal find that both local (firm-level proxies of reported and perceived bribe payments) and global (measured as irregular and extra payments related to export and import permits, business licenses, tax assessments, police protection or loan applications) corruption have adverse impact on firm productivity. Based on a sample of Brazilian companies from 1998 and 2002 elections, Claessens et al. (2008) examine the association between campaign contributions made by firms and future firm-specific favors. Claessens et al. find that there is a positive correlation between campaign finance and firm future access to finance which implies that such firms gain preferential access to finance from financial institutions. In addition, Claessens et al. argue that executives who are more prone to engage in corruption also prefer to rationalize bribe payments and other similar activities to get the things done. Using Business Environment and Enterprise Performance Survey (BEEPS) data, Athanasouli et al. (2012) examine the association between corruption and firm performance (measured as annual sales and sales growth) using a sample of Greek firms and suggest that administrative corruption is “business barrier” that hampers the firm performance. Ayaydin & Hayaloglu (2014) examine the effect of corruption level on the growth of the firm. Using a sample of 41 manufacturing firms from Turkey, the authors provide the evidence that there is statistically significant and positive relation between corruption level and growth of private firms. Ayaydin & Hayaloglu argue that corruption (measured as Corruption Perception Index) could accelerate the economic development of any firm because it speeds up the commerce through illegal practices and bribe payments. De Rosa et al. (2010) using a Bank Business Environment Performance Survey (BEEPS) data of 11,000 firms from 28 transition and developed countries, investigate the effect of corruption on firm-level productivity. Testing the effects of bribe tax and time tax on full sample, they find that bribe tax appears to have negative impact on firm productivity whereas the effects of time tax are statistically insignificant. Faruq et al. (2013) investigate the impact of corruption (such as bribes, excessive patronage, nepotism, secret party funding, job reservations and suspiciously close ties between politics and business), and bureaucratic quality on firm productivity. Using a sample of 900 companies over twelve years of data from three African countries (Ghana, Kenya and Tanzania), Faruq et al. find that both poor bureaucratic quality and

corruption have a strong negative impact on firm productivity. In a very recent paper, using a nationwide survey data of institutional (provincial) quality and a sample of private manufacturing enterprises (SMEs), Van Vu et al. (2016) show that bribery intensity has statistically significant and negative impact on the financial performance (measured as ROA) of the firm. In another recent study of William et al. (2016), the authors analysis the association of bribery with financial performance using a sample of 132 developing countries over the period of 2006-2014. William et al. employ the WBES survey data and find that bribery improves the firm performance (measured by sales growth, annual employment growth and annual productivity). William et al. report that 25.3% firms believe or favor that the informal payments (or bribe) and gifts to officials are essential or necessary to get their work done. The recent work of La Rocca et al. (2017) examine the moderating role of country-level corruption on the relationship between cash holdings and financial performance of the firm. The authors conduct this study in Italian context where bureaucratic red tape is high and hinders the economic development of the country. The authors argue that in presence of high-level country corruption, the cash holdings have negative impact on firm performance. The authors support the view that the management may prefer to keep high level of cash stock to pay corrupt activities, having high discretionary power and opportunistic sovereignty, instead of shareholders' wealth. So, it can be implied that in absence of effective governance, the management may start to exploit firm' resources for their personal benefits at the cost of shareholders' wealth.

The firms involved in any sort of illicit activities such as bribe payments, money laundering, securities fraud (i.e. embezzlement, asset fabrication, share price manipulation, illegal guarantee etc.), bank fraud, piracy, tax-evasion, financial crimes among others are most likely to increase its opportunity cost and reduces the revenues. Since all the illicit (or illegal, dishonest, unethical) actions always encourage the flow of the unofficial activities, which may be assumed to damage the overall functioning and management of any firm. It can be expected that the involvement of any firm in corruption or fraud reduces its efficiency, transparency as well as increases the miss-allocation of its capital and investment. In turn, such firms increase their operational costs by paying a lot of money to settle their illegal matters in form of bribes or fines payments charged by governing bodies of any nation and reputational costs in form of image damage in market place. Moreover, the secretive nature of corrupt or dishonest behaviour terminates the valuable information flow, communication, coordination, and transparency of the

firm. As a result, internal corrupt environment of firm increases the self-interest seeking of its actors (i.e. board members and executives), the problem of insufficient information, opportunistic behaviour, and poor governance thereby raising the agency conflicts among stakeholders of firm and reducing the performance. On basis of above statements, we hypothesize the following:

*Hypothesis 1: Corruption at firm-level is negatively associated to corporate performance.*

Corporate scandals such as Enron and WorldCom have directed a serious concern due to the inefficient monitoring and controlling by the governing body of the corporations. The conventional arguments of (Fama & Jensen, 1983), define the function of board as a mechanism to monitor and control the opportunism of executives, particularly top-level executives of the firm. In agency framework, the corporate board members work as arbitrators in situation of deviation of interest between managers and shareholders by establishing appropriate compensation schemes and replacing the opportunistic top managers. If board members are involved in corrupt practices, they are more likely to be opportunistic. Such board members may be more willing to agree with the management decisions because of their social contacts, self-interest and financial ties with management. Consequently, it can be assumed that the dishonest or corrupt board members may not perform their functions of monitoring and controlling in effective manner. This discretionary behavior of board members will result in poor quality governance, higher level of managerial opportunism thereby increase agency conflicts between managers and shareholders. In brief, it may be assumed that the growing level of corrupt board members will have adverse effects on the financial performance of the firm.

*Hypothesis 2: Corruption at board level is negatively associated with corporate performance.*

Following the principal-agent literature, it can be imagined that corrupt or dishonest executives may be more likely to be opportunistic and prefer to maximize their personal wealth. These opportunistic behaviors may create several difficulties such as information asymmetry, lack of trust and agency conflicts. According to corruption literature, it is believed that individuals attract to do illegal, dishonest and criminal acts because they are fascinated by the

incentives of corruption to endorse their personal benefits. Since executives have information advantage on company which they operate, corrupt executives may be more likely to exploit their skills, knowledge, position and power against the firm as well as may hide the essential information to cover-up their unethical, criminal, dishonest or illegal acts and pursue those short-term investments which improve their incentives and personal wealth. These actions by dishonest or corrupt executives may also create the problem agency conflicts. Corruption at management-level increase the managerial opportunism, which leads to the agency conflicts, and information asymmetry and enhances the costs of firm. Based on above-mentioned rationales, it may be imagined that the rising level of corrupt executives will lower the financial performance of the firm.

*Hypothesis 3: Corruption on management group negatively affects corporate performance.*

As a matter of serious concern has arisen by the book of Zingalas (2012), where the growing political power of company has been demonstrated as a detrimental force for competition and thereby value. Zingalas highlights the issue how strong business leaders with political connections enjoy and enrich themselves by siphoning money from the firm they manage. As just one of many examples mentioned into the book, in the late of 1990s, the case of Russian oligarchs who used to trade (sell) oil at below market-prices to foreign trading companies that they personally owned. According to Zingalas, this kind of behaviour is not worldwide uncommon. Enron case in U.S., considering the political (Republican) connection of Kenneth Lay (CEO and chairman for most of the life of Enron), and its CFO Andrew Fastow, is another exemplification. Andrew Fastow was the in charge of all complex and financially sophisticated off-balance-sheet special purpose entities (limited partnerships which Enron controlled) used to hide Enron's massive losses in their quarterly balance sheets. He had done the fraudulent and corrupted interest of Enron and, at the same time, unlawfully maintaining personal stakes in these supposedly independent ghost-entities, he was able to defraud Enron out of tens of millions of dollars. Therefore, corruption in executives intensifies their personal request for opportunistic expropriation of firm value, strongly damaging the firm. The literature on the association of politics with firm values is growing. The political connections of firm have been suggested as an important determinant of firm profitability (Agarwal & Knoeber, 2001).

Agarwal & Knoeber argue that firm political connections can assist it with their knowledge of government procedures and skills in estimating the government policies. In the context of China, Li et al. (2008) show a positive relationship between firm political connections (party membership) and firm performance, suggesting that the political party alliance supports the private entrepreneurs to get easy access to external source of capital such loans from banks and state-level institutions. Using a sample of 245 privatized firms headquartered in 27 developing and 14 developed countries for period 1980-2002, Boubakri et al. (2008) find that newly privatized firm with major political ties suffers and report the poor performance. Although, the political alliances are associated with some benefits, there are also costs which firms with these connections bear. For example, as Shleifer & Vishny (1994) emphasize that having politically connected members inside firms tend to extract rents in exchange of their favours to firms.

The role of PEPs in management or board of director, who hold influential positions and keep power to formulate and manipulate the important decision policies can be crucial for firm value. In line with agency theory and real life examples, we argue that firms managed or governed by political exposed persons (executives/ board members), may be more likely to have the problem of opportunism, agency conflicts and information asymmetry; moreover, it may undermine the quality of the management and board as these executives/ board members may not be fully dedicated to delivering the services to the firm as well as may be more self-interested in extracting heavy rents from company with respect to their positions in the government and legal system and increase the costs of firm. It can be imagined that PEPs' connections with firm apparently brings profits to the firm, it also damages the demand of performance-based incentives and rewards to favouritism. Therefore, the intensity of PEP executives or board members may be assumed to create problems of opportunism, agency conflicts and poor-quality management and governance and in turn, the firm performance.

Based on above-mentioned rationales, it may be assumed that the rising level of PEP executives or members of the board will lower the financial performance of the firm.

*Hypothesis 4: PEP executives (or board members) have negative impact on corporate performance.*

A broad spectrum of researchers, strategists and policy-developers acknowledges the significance of gender-diversity and women empowerment at the highest hierarchy of decision-making for economic and social development. Many empirical and experimental studies document that there exists the systematic behavioural differences between females and males (Rivas, 2013) which are at core of understanding the differences in their decision making in both personal and professional life. In psychology and economics literature, several parameters namely overconfidence, social preferences, moral development, modesty, faithfulness and leadership styles have been studied to explore the behavioural differences between females and males and to determine the role of gender in firm decisions. For example, the research work of Bernardi and Arnold (1997) suggest that female executives tend to have higher level of moral values in comparison to their male counterparts. Like this, other studies report that female business students are more concerned about ethical issues in comparison to their male counterparts (Beltramini et al.,1984; Borkowski & Ugras,1998, and Peterson et al.,1991). The most well- known gender-differences refer that women are on average more risk and loss averse than men (Schubert, 1999; Croson & Gneezy, 2009). In an experimental research review, Croson & Gneezy (2009) argue that observed differences in risk behaviour of women and men are mainly driven by three types of variation in level of emotional experiences, degree of confidence, and interpretation of risky situations. First, they suggest that women are more risk averse because women show more intense nervousness and fear than men in the projection of negative results (Fujita et al.,1991). Even it has been found in 1960s nationwide survey of Americans that women usually experience more negative outcomes than men (Fujita et al.,1991). Second, they argue that differences of risk attitudes between women and men may be caused by the differences in confidence level as literature finds that women are less overconfident than men, especially in uncertain environment. For example, women have been substantially found less confident than men in their investment decisions (Estes & Hosseini, 1988). Finally, they argue that the differences of risk attitudes are the differences in the interpretation of risk situations. For instance, males are more likely to perceive risk situations as challenge whereas females interpret risky situations as threats, which encourages them to avoid such situations. Based on the above theoretical arguments, we can assume that corrupt females and males may not be likely to behave same since behavioural differences will reflect their ways to respond the situations.



In this direction, empirical and experimental research work on the nexus between corruption and gender is a matter of interest. Although these two issues are at the core of future economic development, both related to business ethics and sustainability, only recently they are studied together in a very few papers. Just after the pioneering studies of Dollar et al. (1999, 2001) and Swamy et al. (2001), the analysis of the behaviour across gender towards corrupt or dishonest activities has gained more attention but not enough. In a general view of two seminal studies (Dollar et al., 1999; Swamy et al., 2001), as well as international studies of World Bank (Corruption and women in government), it has been identified that larger female participation in organizations reduces level of corruption. Female are more trustworthy, more ethical, and more reluctant to engage in corrupt activities. From this view, it can be implied that the basic nature of females who perform their social roles as mother, caring for babies and family members intrinsically averts and disturbs them to adjust and manage with corrupt or unhonourable environment.

The effects of corruption can be assumed to vary according to the gender; the way female deals and reacts with corruption can differ compared to the behaviours of male. As Frank et al. (2011) detect that female typically react more strongly to risky situations and corrupt activities are more likely to fail. Female may typically feel more uncomfortable in corrupted situations, becoming nervous, fearful and even less confident to deal with their corrupt (dishonest, dishonoured, unethical or illegal) task, having as an output of higher probability that the corrupt activity fails. By nature, females are not suitable for the corrupt or dishonest activities. In general, they prefer honest and highly ethical behaviour, but if they are involved in any corrupt or dishonest activities, they are not able to deal with and so such corruption became even more negative for firm performance. Therefore, there would be two effects of corruption on corporate performance. The first negative effect is related to what we mentioned before, while the second one concerns the role of female involved in corruption that amplifies this negative effect of corruption because female involved in dishonest activities, becoming more nervous, fearful and less confident may be more likely to increase the probability that activity will fail in the presence of high risk of punishment, fines and fire out., and damage the performance of the firm.

In the light of above mentioned theoretical arguments, it can be imagined that corrupt female executives (or board members) may not be as smart (and confident) as their male counterparts to cover-up their mistakes and cannot handle the risk of involvement in corrupt

transactions and tasks. In situation when executives or board members are corrupted and female, the incapability of females to manage the highly risky, illegal and unethical transactions amplifies the negative effect of corruption and it may direct the firm even in a worse condition.

*Hypothesis 5: Corrupt females in management (or among board members) have strong negative impact on corporate performance.*

### **3.3 Research Design**

#### *3.3.1 Data*

We use one data source to conduct this empirical analysis on the nexus between firm-level corruption and performance. All the accounting, ownership, board, management and corruption data are accumulated from Orbis database<sup>33</sup> which is organized by Bureau Van Dijk (BVD), a major electronic publisher of corporate information in the Europe. Our selection of European companies' sample seems very important and it may provide valuable insights to the ongoing debate on corruption and its consequences on the development<sup>34</sup>.

\*\*\*\*\*Insert Table 1 Here\*\*\*\*\*

The sample analyzed in the study consists of a cross-sectional data of 2,789 listed companies across 34 European countries. We considered just listed firms because Bureau Van Dijk can provide a full set of information concerning corruption of these firms, while including unlisted we have to deal with too much missing to deal with. The time horizon of the data belongs to the recent year of 2015 because data concerning corruption were available just for that year and not before. We have omitted firms operating in banking and insurance industries. Furthermore, we exclude observations that are outliers, winsorizing at the first and last percentiles for accounting

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<sup>33</sup> Orbis is a global database containing data over 86 million companies from Europe. Data covers financial and economic activity information, corporate and ownership structure, and company information on politically exposed persons (PEPs), sanctions as well as other type of adverse data.

<sup>34</sup> According to Nowak (2001), the fall of the Berlin wall (November 1989) is commonly credited with giving increase prominence to corruption issues. Simultaneously, the right-wing residents (i.e. nationalists) also started to criticize corrupt government in Western Europe as the latter are no longer required as anti-communist supporters (Bosco, 2016).

variables to avoid the distortions in the estimates. Finally, observations from initial sample for which all the necessary accounting data are unavailable for the analysis are removed. In the Appendix 1, we describe our sample characteristics.

### 3.3.2 Main variables

The variables utilized in the empirical analysis to study the effects of firm-specific corruption on financial performance of firm, are defined in Table 2.

\*\*\*\*\*Insert Table 2 Here\*\*\*\*\*

#### 3.3.2.1 Performance measures

In empirical studies, financial performance of the firm has been measured in many ways by implementing different methods; however, the most widely applied approach of financial analysis invokes to profitability ratios as they are mainly considered as the parameters of financial performance and, efficiency. For our regression analyses, we employ multiple proxies of financial performance of the firm. In corporate finance literature, two kinds of performance have been suggested: 1) market-based measures such as Market to Book Ratio, Tobin's Q and Equity MTB have been provided; 2) accounting-based measures such as Return on Assets (ROA), Return on Investment (ROI), Return on Sales (ROS), and Return on Equity (ROE); Unlike the existing empirical studies on effects of corruption on firm performance, we use *Market to Book Ratio* and *Return on Assets (ROA)* as the measures of market-oriented and accounting-oriented financial performance of firm, respectively. The market to book value ratio is a financial ratio which is defined as the market value to firm over book value of assets (Harford et al., 2008) and capture the long-term performance of firm. This ratio indicates to the future growth and competitive advantage of the firm. A higher value of *Market to Book Ratio* should reflect the expected future gains because of some expected investment opportunities and/or competitive advantages. Conversely, a lower value of aforesaid ratio can reflect poorer growth opportunities and market is over-pessimistic, indicating towards some fundamental issues with the company. To evaluate the effects of corruption on performance in a short-run, we use *Return on Assets (ROA)* which equals to net income divided by total assets in the given fiscal year. This

index, unlike *Market to Book Ratio*, relies on present earnings rather than future gains. The former ratio represents the profits of the company in a particular period of time with respect to the value of its assets. A higher value shows that the company is more effectively managing its assets to generate great amount of net income and a positive value of *Return on Assets (ROA)* generally indicates upward profit trend. To verify that the obtained regression results do not depend on the performance measures applied, we perform some robustness tests using also *Equity MTB* ratio equals to market value of equity divided by book value equity and *Return on Investment (ROI)* equals to earnings before interest and tax divided by total assets.

### 3.3.2.2 Corruption variables

The most important and one of main variables of interest of study are the corruption measures at firm-level. Before defining the proxies of corruption, it is essential to understand what is mean by corruption in general terms. Despite of numerous efforts by economists, scholars and policy-developers, corruption still is remained a very complex phenomenon, having multiple dimensions. In corruption literature review by Jain (2001), he argues that it is very uncommon to agree on a very specific definition of corruption, though there is consensus that corruption refers to the acts in which power of public office is used for personal benefits in such way that contravenes the rules of the game. Later, he also mentions that this common corruption definition does not include several illegal activities such as fraud, money laundering, drug trades, and black-market operations due to the fact these practices do not involve the use of public power Jain (2001). While, according to MacMillan Dictionary -corruption can be defined as- dishonest, fraudulent or illegal behavior by officials or people in positions of power, especially when they accept money in exchange for doing things for someone. The corruption definition provided by International Country Risk Guide (ICRG), published by Political Risk Service Group, used in papers as Faruq et al. (2013, pp. 119), corruption “is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, ‘favors-for-favors’, secret party funds, and suspiciously close ties between politics and business”. MacMillan dictionary and International Country Risk Guide (ICRG) definition seem to cover a broad spectrum of social, legal, economic and environmental dimensions of corrupt, dishonest, criminal, unethical or illegal activities. Especially, in a firm perspective, this definition looks

perfectly fit where people in positions of power can include the managers and board of directors of firm. The managers and board of directors both are entitled to work on behalf of firm owners (or shareholders) to maximize the shareholders' wealth as they are being hired, and assigned duties, responsibilities along with powers to perform their roles. Since corruption occurs when position and power are in a place and human beings are in charge of the work. Hence, after considering the MacMillan and ICRG definitions, we define corruption as follows: Corruption is a kind of illegal, unethical and untruthful behaviour which abuses his/her authority, power and position to nourish self-interest at the cost of other individuals because of personal interest, self-satisfaction, competition, jealous, and aspiration of status gain.

To identify corruption, avoiding that the results on basis of a single proxy, we construct six proxies of firm-specific measures of corruption-level: 1) *Firm Corrupt Dummy*, a dummy variable that equals to one if firm is alleged for the involvement in any kind of sanction, enforcement, PEP or adverse media list, and zero otherwise; 2) *Percentage of Corrupt Board Members*, calculated as the percentage of corrupt board members with respect to total board members in the firm, where corrupt or dishonest board members are those whose name is involved in any sort of sanction, enforcement, PEP or adverse media list of world compliance; 3) *Percentage of Corrupt Executives*<sup>35</sup> is defined as percentage of corrupt executives with respect to total executives in the firm; 4) *Percentage of Corrupt Senior Executives*<sup>36</sup>, calculated as percentage of corrupt senior executives with respect to total executives in the firm; 5) *Percentage of Corrupt Female Board Members* is the percentage of corrupt female board members with respect to total board members in the firm; and 6) *Percentage of Corrupt Female Executives* is the percentage of corrupt female executives with respect to total executives in the firm.

To get better understanding of firm level corruption consequences, we use alternative proxies of corruption, focusing on specific form of corruption. In such way, the estimated effects of corrupt or dishonest behaviour may be more evident, suggesting that the outcomes are not spurious. Following to Li et al. (2008), we use corruption proxy based on political connections

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<sup>35</sup> These executives (or managers) involve all those persons who actively working in the firm on a daily basis, who deal with current affairs on an executive's point of view, but do not necessarily sit on the table of the board of directors. Manager, executive officers, employees, representatives etc. are all part of active workforce of a company and therefore belong to management or executives' group. This executives' group includes not only the top-level executives, who set corporate strategies, but also those managers who execute these strategies titled as middle management, department managers and salaried supervisors. De facto, the concern is in those who could be said to be in strategic positions.

<sup>36</sup> These executives are all top-level executives such as CEOs, CFOs, and COO among others.

of the firm. In particular, we use six alternative proxies which are as follows: 1) *Firm Politically Exposed Dummy* equals to one if firm is politically exposed, and zero otherwise; 2) *Percentage of Board Members Politically Exposed*, calculated as the sum of politically exposed board members divided by total board members in the firm; 3) *Percentage of Executives Politically Exposed*, calculated as the sum of politically exposed executives divided by total executives in the firm; 4) *Percentage of Senior Executives Politically Exposed*, calculated as the sum of politically exposed senior executives divided by total executives in the firm. Finally, as the alternative proxies of gender-based corruption, 1) *Percentage of Corrupt Male Board Members* as percentage of corrupt male board members with respect to total board members in the firm; and 2) *Percentage of Corrupt Male Executives* is the percentage of corrupt male executives with respect to total executives in the firm, are being used.

### 3.3.2.3 Control variables

As regard to the performance model of firm, prior to the estimation of corruption effects on firm performance, it is necessary to consider for the control variables in relation to studies on this relationship. Following prior studies (e.g. Van Vu et al., 2016; Donadelli et al., 2014; Li et al., 2008; Sharma & Mitra, 2015), including firm performance literature, we use the control variables which may capture some effects on financial performance of the firm. We control for firm's characteristics, board features, and managerial characteristics. The governance and managerial level characteristics play a significant role in determining a firm performance, affecting firm's policy formulation and decision-making. For example, in psychology literature, it is argued that young managers are more enthusiastic and ambitious for their career advancement than their older counterparts. Following the previous literature on corporate performance, we also control *Average Board Age*, defined as sum of board members' age divided by total number of board members (Carter et al., 2010) and *Average Executives Age*, calculated as sum of executives' age divided by total number of executives. *Board Size*, calculated as natural logarithm of sum of board of directors in the firm; as bigger-sized group of board members creates problems in coordination, communication and lowers the board ability to control top management, thereby leading to agency issues stemming from separation of management and control (Jensen, 1993). It is widely-known fact that ineffective governance adversely affects

profitability and value of firm. *Board Gender Diversity* is calculated as the sum of female board members divided by total board members (Campbell & Mínguez-Vera, 2008); as gender-diverse boards are characterized by the potential for greater participation of directors in the decision-making (through attendance and committee assignments), more incentive alignment, and tough monitoring (Adams & Ferreira, 2009). In this way, gender diverse board improves governance and controlling mechanism inside firm, thereby increase the performance. We include *Firm Age* is calculated as the natural logarithm of the numbers of years since the incorporation year of the firm in the year of data collected (Glancey, 1998); as the older companies are more experienced, and have advantage of dynamic economies of scale by learning as well as can get cheap borrowing by reputations effects; moreover, matured firm are not vulnerable to the liabilities of newness, in that way improves the firm performance. *Firm Size*, is calculated in terms of the natural logarithm of total assets (Pervan & Višić, 2012), which is a superior proxy of size in comparison to sales or employment concept of size (Hall & Weiss, 1967); larger firms have higher market power which allows it to charge higher prices and earn more profits. In addition, unlike smaller firms, larger-sized firms do not have to face financial constraints and can get easy access to external finance, leading to attract and tap better growth opportunities. *Financial Leverage* is calculated as total financial debt divided by total assets (Singh & Faircloth, 2005); high-levered firms are financially more vulnerable<sup>37</sup> and experience the underinvestment problem (Myers, 1977) since they cannot raise equity to finance profitable investment opportunities because a large portion of funds goes to bondholders and a stochastic investment opportunities set introduces agency costs of debt that negatively affect firm value (Stulz, 1990). *Assets Growth* is measured by the percentage change in total assets from previous period (Titman & Wessels 1988); as higher assets growth tends to higher investments opportunities available to firm, in this manner increases the value of firm. *Tangibility* is calculated as the ratio of tangible fixed assets over total assets (Frank & Goyal, 2003); as firm with high level of investment in tangible assets enjoys lowers costs of financial distress (Akintoye, 2008), and issues debt more often (Mackie-Mason, 1990), thereby improving firm performance. *Ownership*, calculated as the percentage of direct and indirect ownership of the top largest shareholder; as highly concentrated ownership causes the conflicts of interest between the majority and minority shareholders (La

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<sup>37</sup> Financial leverage plays a disciplinary role to control managers by limiting free cash flow at hand as well as it may also increase the financial distress and bankruptcy.

Porta et al., 1999). In addition, the largest shareholder tends to have high voting rights, more likely get almost full control over the firm and are wealthy enough to use firms to extract private benefits that are not shared by minority shareholders and may reduce managerial incentives, leading to outweigh the benefits of ownership concentration and reduces the performance. *R&D Intensity* is calculated as the research and development expenses divided by total assets; as higher research and development investment increases the operating costs in presence of high degree of uncertainty associated with rapidly changing technologies and decreases operating income (Hsu et al., 2013), thereby *R&D Intensity* affect the firm performance negatively. Finally, we also use the industry and country fixed effects as control factors in all the models, using dummy variables.

### 3.3.3 Methodology

This study is conducted to analyse the effects of firm-level corruption on the financial performance of the firm using a basic model.

$$\text{Firm Performance} = f(\text{Corruption, Control Variables})$$

Although the goal of the paper assumes corruption to affect firm performance, there are potential endogeneity issues to deal with. The endogeneity problem is a prevalent impediment in the empirical examination of the relationship between corruption and financial performance of firm (Fisman & Svensson, 2007) since corruption is considered as an endogenous variable. For instance, the likelihood of firm involvement in corruption might be influenced by some unobservable factors that can be correlated with the error-term. Moreover, it could be possible that in better performing firms, more cash can be used for illegal activities or low performing firms may put more efforts to get the work done by illegal or dishonest ways to turnaround the business. In such situation, the direction of causal relationship will change than we expect. To solve this issue of endogeneity and possible reverse-causality, two-stage least squares (2SLS) regression has been implemented as an econometric tool of estimation. We estimate the following 2SLS regression models:

Model-1:



**First stage:**

$$\text{Firm Corruption}_{i,t} = \alpha_0 + \alpha_1 \text{Industry Mean of Corrupt Board Members}_{j,t} + \alpha_2 \text{Industry Mean of Corrupt Executives}_{j,t} + \theta X_{i,t} + \tau_j + \gamma_k + \mu_{i,t}$$

**Second stage:**

$$\text{Firm Performance}_{i,t} = \beta_0 + \beta_1 \text{Instrumented Firm Corruption}_{i,t} + \emptyset X_{i,t} + \tau_j + \gamma_k + \varepsilon_{i,t}$$

Model-2:**First stage:**

$$\text{Board Corruption}_{i,t} = \alpha_0 + \alpha_1 \text{Industry Mean of Corrupt Board Members}_{j,t} + \theta X_{i,t} + \tau_j + \gamma_k + \mu_{i,t}$$

**Second stage:**

$$\text{Firm Performance}_{i,t} = \beta_0 + \beta_1 \text{Instrumented Board Corruption}_{i,t} + \emptyset X_{i,t} + \tau_j + \gamma_k + \varepsilon_{i,t}$$

Model-3:**First stage:**

$$\text{Management Corruption}_{i,t} = \alpha_0 + \alpha_1 \text{Industry Mean of Corrupt Executives}_{j,t} + \theta X_{i,t} + \tau_j + \gamma_k + \mu_{i,t}$$

**Second stage:**

$$\text{Firm Performance}_{i,t} = \beta_0 + \beta_1 \text{Instrumented Management Corruption}_{i,t} + \emptyset X_{i,t} + \tau_j + \gamma_k + \varepsilon_{i,t}$$

In above given models (1-3), firms are represented by  $i$ , industry by  $j$ , country by  $k$  and time by  $t$ , where  $t$  time represents to the year 2015.  $\text{Firm Performance}_{i,t}$  is the financial performance of the firm  $i$  in given year  $t$ .  $\text{Firm Corruption}_{i,t}$  can be any the following proxies of firm  $i$  in the given  $t$  year: *Firm Corrupt Dummy*, and, *Firm Politically Exposed*.  $\text{Board Corruption}_{i,t}$  can be any of the following: *Percentage of Corrupt Board Members*, *Percentage of Board Members Politically Exposed*, and *Percentage of Corrupt Female Board Members*.  $\text{Management Corruption}_{i,t}$  can be any the following proxies of firm  $i$  in the given  $t$  year: *Percentage of Corrupt Executives*, *Percentage of Corrupt Senior Executives*, *Percentage of Corrupt Female Executives*, *Percentage of Executives Politically Exposed*, *Percentage of Senior Executives Politically Exposed*, *Percentage of Corrupt Male Board Members*, and *Percentage of Corrupt Male Executives*.  $\text{Instrumented Corruption}_{i,t}$  is the fitted value of corruption indicator from first stage regression for each firm in the given year.  $X_{i,t}$  is the vector of control variables for each firm in the year of 2015, namely *Average Board Age*, *Average*

*Executives Age, Board Size, Firm Size, Firm Age, Financial Leverage, Assets Growth, Tangibility, Ownership, and R&D Intensity*.  $\tau_j$  and  $\gamma_k$  control for the industry and country fixed effects<sup>38</sup>, respectively i.e. it captures the different unobservable characteristics those could affect the firms across sample.  $\mu_{i,t}$  is the error-term of the first-stage regression, whereas  $\varepsilon_{i,t}$  is the error-term of the second-stage regression.

We use two instrumental variables to deal with the problem of endogeneity and measurement error with corruption measures. However, it is very difficult to find fully excludable instrumental variables. The implementation of instruments requires valid and strong instruments that fulfil the following two conditions: 1) Instrument should be correlated with the endogenous variable; 2) Instrument should be unrelated with the error term. Consistent with Fisman & Svensson (2007), who use industry location averages of bribe and tax as instrumental variable for corruption measures, we employ *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives* as instrumental variables. We assume that the probability of a firm to be involved in corruption is more likely to be influenced by industry-level corruption. In some industries, it is customary to look for favour by “friends” offering bribes or reciprocate favours in legal form, and for companies, it becomes important to be part of these groups of “friends” to sustain their competitive advantages and to be able to face competition even better than using new strategies or firm’s resources. If this is a case in an industry, where the way of dealing with business problems is related to illegal even more than opportunistic behaviours, it means that large majority of firms would tend to adopt this prevalent style. As firm’s opinion and behaviour towards corrupt or dishonest actions are more likely to be guided by conduct and experiences of competitors, operating in the same industry. For example, the case of automotive industry scandals by Volkswagen and Fiat Chrysler (described in second part of the chapter), where the companies are being found to be influenced by the corrupt approach of their competitors in the same industry. In a similar way, the industry-level corrupt or dishonest conduct of board members and executives may encourage other board members and executives as well as work as promoter of the corrupt practices in the form of an important factor to get personal benefits, competitive advantage, and survival in that industry. In such environment, the possibility of firm corruption improves since industry atmosphere either forces or rewards to

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<sup>38</sup> We control only for industry and country fixed effects as we can’t use firm fixed effects due to cross-sectional nature of data.

corrupt behaviour. Therefore, we expect that *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives* are positively correlated with the firm possibility to be involved in corruption. Like this, board-level corruption is instrumented by *Industry Mean of Corrupt Board Members* and management-level corruption is instrumented by *Industry Mean of Corrupt Executives*. In case of both instruments, there are no theoretical arguments to believe that these variables can directly influence the financial performance of the individual firm, however the propositions of relevance of instruments must be tested.

### 3.4 Descriptive Statistics

Table 3 presents the descriptive statistics for all the variables used in the models.

\*\*\*\*\*Insert Table 3 Here\*\*\*\*\*

The Market to Book Ratio is on average 0.85 and Return on Assets (ROA) is on average -0.03. There are 13.4% firms which are corrupt, whereas 0.6% firms are politically exposed firms. The average percentage of corrupt board members in a firm is around 15.6%, while average percentage of politically exposed board members is 10.6%. The average percentage of corrupt executives in a firm is around 11.5%, whereas average percentage of politically exposed executives in a firm is around 13.0%. The average percentage of corrupt female board members in a firm is around 2.70%, whereas average percentage of corrupt female executives in a firm is around 1.40%.

In Table 4 the correlation matrix is represented for the variables defined above.

\*\*\*\*\*Insert Table 4 Here\*\*\*\*\*

The correlation matrix reports that the correlation coefficients were inconsistently positive between corruption variables and firm performance, directing towards further analysis because this inconsistency may indicate to the omitted variables biasness that are affecting financial performance of the firm. With respect to the multicollinearity problem, the magnitude of correlation among explanatory variables is not very high, indicating that multicollinearity is unlikely to bias coefficients of estimation. Moreover, we also execute VIF test (not reported for

briefness) and find that our analysis is not threatened by this type of problem. In general, there is not a strong and relevant overlapping between the dummy firm corrupted and the variables concerning corruption of individual units. Moreover, PEP is one dimension of corruption, that according to the low correlation with corruption as whole shows to be a less frequent phenomena into the firm.

### 3.5 Results

In this section of the chapter, we present the results of the regression analysis. Particularly, the empirical analysis on the effects of corruption is divided into three subparts: 1) concerning the impact of firm-level corruption on financial performance of the firm, 2) concerning the impact of PEP-connections on financial performance of the firm and 3) analysis of effects of firm-level gender-based corruption on corporate performance.

#### 3.5.1 Main empirical analysis

##### 3.5.1.1 Corruption and financial performance

In this section, we present the preliminary findings of the regression analysis by applying two models, the ordinary least squares (OLS) model and the two-stage least squares (2SLS) model. In case of all regressions' outcomes of 2SLS model, we reported the second-stage regressions, however the first one is provided on request. The main independent variables *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, and *Percentage of Corrupt Senior Executives*, alternatively used, are the fitted values of corruption (i.e. firm-level corruption) indicator from the first-stage of regression.

\*\*\*\*\*Insert Table 5.1 Here\*\*\*\*\*

In Table 5.1, using the baseline ordinary least squares (OLS) regression, results in columns 1-4 show the estimation effects of corruption on *Market to Book Ratio* (i.e. long-term performance measure), while in columns 5-6, we provide the evidence of corruption impact on *Return on Assets (ROA)*, a short-term proxy of financial performance of the company. The

empirical results show that the coefficients' value of *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives* and *Percentage of Corrupt Senior Executives*, are negative and on average, statistically significant at least at 5% level. This negative impact of corruption on financial performance of firm seems consistent when we use another more suitable technique of estimation for this kind relationship.

\*\*\*\*\*Insert Table 5.2 Here\*\*\*\*\*

As mentioned earlier that for an instrumental variable to be valid, it must satisfy both exogeneity and identification assumptions, that is, it must not be associated with the residual term and simultaneously, it should explain the variation in the endogenous variable (firm-level corruption, board corruption and management corruption). If we believe that our instrumental variables are valid, we would summarize that 2SLS outcomes are reliable because both unobserved heterogeneity and endogeneity have been controlled in this technique. The F-tests statistics of the first stage regression of model 1, indicate that our instruments (*Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives*) are always jointly significant to estimate the firm involvement in corrupt activities. The F-tests statistics of the first stage regression of models 2 and 3, indicate that the instruments *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives* are always statistically significant to estimate the board-level corruption and management-level corruption, respectively. In addition, the economic impact of each instrumental variable about corruption-level in firm, board and management is also satisfactory. Subsequently, the instrumental variables pass the relevance criterion. In addition, there is no justification to rely on in the fact why *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives* should directly influence the firm performance. In fact, we generally find a statistically not-significant Hansen-J statistic, which identifies their (instruments) joint validity. In this way, the instruments reasonably satisfy the exclusion criterion.

In Table 5.2, we apply 2SLS method for correcting the issues of endogenous measures of corruption. In columns 1-4, the second stage regressions' results of corruption impact on *Market*

to Book Ratio show that the coefficients of fitted value of *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, and *Percentage of Corrupt Senior Executives*, alternatively used are negative and on average, statistically significant at least at 1% level. Similarly, in columns 5-6, the second stage regressions' results of corruption impact on *Return on Assets (ROA)* report that the coefficients of fitted value of *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, and *Percentage of Corrupt Senior Executives*, alternatively used are negative and on average, statistically significant at least at 1% level. It implies that firm-specific corrupt seems to have a negative impact on both its long-term and short-term financial performance. Consequently, the *Hypothesis 1*, *Hypothesis 2* and *Hypothesis 3* seem to be confirmed, inferring that secretive nature of corrupt or dishonest conduct destroys the valuable information flow, communication, coordination, and transparency of the firm. As a result, internal corrupt environment of firm increases the self-interest seeking of its actors (i.e. board members and executives), the problem of insufficient information, opportunistic behaviour, and poor governance thereby raising the agency conflicts among stakeholders of firm and reducing the performance. It implies that corruption at firm as whole, board and management level play a vital role in determining firm performance by improving the propensity of executives' opportunism and ineffective governance.

### *3.5.1.2 Political Exposed Persons in management or among board members and financial performance*

Although, the political powers of firm are most often considered as an important source to get favours and special treatments by governments (also politicians) to improve the firm profitability, it also generates the costs for the firm as a well said quote- "Nothing is free in this world by money or time". For example, political connections also generate costs to firm, in terms of firm's financial and/or non-financial resources devoted to keep going this connection providing gifts, support to the political parties and, politically connected individuals also extract rents from firms. In this part, we present the findings of the regression analysis by applying two models, the ordinary least squares (OLS) model and the two-stage least squares (2SLS) model. In case of all regressions' outcome of 2SLS model, we reported the second-stage regressions, however the first one is provided on request. The main independent variables, *Firm Politically Exposed Dummy*, *Percentage of Politically Exposed Board Members*, *Percentage of Politically*

*Exposed Executives* and *Percentage of Politically Exposed Senior Executives*, alternatively used, are the fitted values of specific form of corruption (i.e. firm-level corruption) indicator from the first-stage of regression.

\*\*\*\*\*Insert Table 6.1 Here\*\*\*\*\*

In Table 6.1, using the baseline ordinary least squares (OLS) regression, results in columns 1-4 show the estimation effects of PEPs specific corruption on *Market to Book Ratio* (i.e. long-term performance measure), while in columns 5-8, we provide the evidence of corruption impact on *Return on Assets (ROA)*, a short-term proxy of financial performance of the company. The empirical results show that the coefficients' value of *Firm Politically Exposed Dummy*, *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives* and *Percentage of Corrupt Senior Executives*, alternatively used are negative and on average, statistically significant at different level. This negative impact of corruption on financial performance of firm seems consistent when we use another more suitable technique of estimation for this relationship.

\*\*\*\*\*Insert Table 6.2 Here\*\*\*\*\*

The results of first-stage regressions (not tabulated) show that instruments continue to be significantly correlated with given corruption proxies. The F-test value reports that the instrumental model estimates PEP-based corruption at board and management level. Therefore, these instruments are not too weak to be valid and can satisfy the criterion of relevance. More importantly, these instruments also plausibly satisfy again the exclusion restriction. Under the assumption of instruments joint validity i.e. overidentification conditions of instruments was also tested when it is applicable.

In Table 6.2, we apply 2SLS method for correcting the issues of endogenous measures of corruption. In columns 1-4, the second stage regressions' results of corruption impact on *Market to Book Ratio* show that the coefficients of fitted value of *Firm Politically Exposed Dummy*, *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives* and *Percentage of Corrupt Senior Executives*, alternatively used are negative and on average, statistically significant at least at 5% level, however the coefficient of *Firm Politically Exposed Dummy* is not statistically significant. Similarly, in columns 5-8, the second stage

regressions' results of corruption impact on *Return on Assets (ROA)* report that the coefficients of fitted value of *Firm Politically Exposed Dummy*, *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives* and *Percentage of Corrupt Senior Executives*, alternatively used are negative and on average, statistically significant at least at 5% level, but the coefficient of *Firm Politically Exposed Dummy* is not statistical significant. It implies that PEP specific executive or board members' corruption seems to have a negative effect on both its long-term and short-term financial performance. Consequently, the *Hypothesis 4* seems to be confirmed, inferring that the intensity of PEP executives or board members may be assumed to create problems of opportunism, agency conflicts and poor-quality management and governance and in turn, the firm performance.

### 3.5.1.3 Gender corruption and financial performance

One of the most valuable contribution towards corruption literature is to investigate the relationship between corruption at gender-level and financial performance of the firm. In this part, we present the findings of the regression analysis by applying two models, the ordinary least squares (OLS) model and the two-stage least squares (2SLS) model. In case of all regressions' outcome of 2SLS model, we reported the second-stage regressions, however the first one is provided on request. The main independent variables *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives*, alternatively used, are the fitted values of corruption (i.e. firm-level corruption) indicator from the first-stage of regression.

\*\*\*\*\*Insert Table 7.1 Here\*\*\*\*\*

In Table 7.1, using the baseline ordinary least squares (OLS) regression, results in columns 1-3 show the estimation effects of corruption at gender-level on *Market to Book Ratio* (i.e. long-term performance measure), while in columns 4-6, we provide the evidence of corruption impact on *Return on Assets (ROA)*, a short-term proxy of financial performance of the company. The empirical results show that the coefficients' value of *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives*, alternatively used are negative and on average, statistically significant



at least at 10% level. This negative impact of corruption on financial performance of firm seems consistent when we use another more suitable technique of estimation for this relationship.

\*\*\*\*\*Insert Table 7.2 Here\*\*\*\*\*

The results of first-stage regressions (not tabulated) show that instruments continue to be significantly correlated with gender-based corruption proxies. The F-test value reports that the instrumental model estimates gender-based corruption at board and management level. Therefore, these instruments are not too weak to be valid and can satisfy the criterion of relevance. More importantly, these instruments also plausibly satisfy again the exclusion restriction. Under the assumption of instruments joint validity, the model is exactly identified in this case.

In Table 7.2, we apply 2SLS method for correcting the issues of endogenous measures of corruption. In columns 1-3, the second stage regressions' results of corruption impact on *Market to Book Ratio* show that the coefficients of fitted value of *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives*, alternatively used are negative and on average, statistically significant at least at 10% level. Similarly, in columns 4-6, the second stage regressions' results of corruption impact on *Return on Assets (ROA)* report that the coefficients of fitted value of *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives*, alternatively used are negative and on average, statistically significant at least at 5% level. It implies that corruption at gender-level seems to have a strong negative impact on both its long-term and short-term financial performance. Consequently, the *Hypothesis 5* seems to be confirmed, inferring that females involved in corrupt activities become more nervous, fearful and less confident in managing the high-level of risk in form of punishment, fines, damage to social image, and being fired out. It can be assumed that corrupt female executives (or board members) may not be as confident (or smart) as their male counterparts to cover-up their dishonest and illegal behaviours, and in turn, they could not handle the risk of involvement in corrupt transactions and tasks. Therefore, when executives or board members are corrupted and female, the incapability of females to manage the highly risky, illegal and unethical practices amplifies the negative effect of corruption and direct the firm even in a worse condition.

### 3.5.2 Robustness checks

To test the robustness of the results of main results, we provide evidence for the impact of corruption on alternative proxies of firm performance.

\*\*\*\*\*Insert Table 8 Here\*\*\*\*\*

In Table 8, the dependent variable, *Equity MTB* and *Return on Investment*, other proxies of long-term and short-term performance have been used. Using 2SLS method, the coefficient values of corruption measures, instrumented by *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives*, are negative and on average, statistically significant. These findings are consistent with the main effect of corruption on *Market to Book Ratio* and *Return on Assets (ROA)*, given in Table 5.2.

\*\*\*\*\*Insert Table 9.1 Here\*\*\*\*\*

To test the robustness of the results of Table 7.2, we investigate the findings of the regression analysis by using alternative proxies of firm performance and implementing the two stage least squares (2SLS) model. In Table 9.1, the dependent variables, *Equity MTB* and *Return on Investment*, alternative proxies of long-term and short-term performance have been used. Using 2SLS method, the coefficient values of corruption measures, instrumented by *Industry Mean of Corrupt Board Members* and *Industry Mean of Corrupt Executives*, are negative and on average, statistically significant. These findings are consistent with the effect of corruption at gender-level on *Market to Book Ratio* and *Return on Assets (ROA)*.

\*\*\*\*\*Insert Table 9.2 Here\*\*\*\*\*

In Table 9.2, one more robustness check is given. For the robustness test of the results of Table 7.2, we investigate the preliminary findings of the regression analysis by using alternative proxies of gender-specific corruption and implementing the two stage least squares (2SLS) method. In case of all regressions' outcome of 2SLS model, we show that the alternative independent corruption variables, *Percentage of Corrupt Male Board Members*, *Percentage of Corrupt Male Executives*, and *Percentage of Corrupt Male Senior Executives* report negative impact on the financial performance of firm and on average, statistically significant at least at

1% level. These results are consistent with Table 7.1 findings and confirm that the presence of corruption at gender-level is negatively affect the financial performance of firm so the results are not spurious and do not depend on specific corruption measure.

Moreover, the results are qualitatively still the same also using the row database, without winsorizing the variables used in the empirical model. Finally, we applied also the three stage least squared approach (3SLS) based on simultaneous equations (the first one concerning performance determinants and the second one related to corruption antecedents) and also in the case the results are qualitative the same.

### **3.6 Conclusion**

This last chapter of thesis explores the effects of firm-specific corruption on the long-term and short-term performance of the firm. Corruption is mainly acknowledged as a primary devastating force that, by “sanding the wheels of commerce”, propagates the hurdles on the way of the economic and social development of the developing as well as developed economies. Nevertheless, a few scholars argue that corruption is an essential “evil” that can be utilized to mitigate the negative effects of hectic bureaucratic system, rigid rules, laws and inefficient government, supporting “grease (or oil) the wheels of commerce” aspect of corruption.

Based on these premises, we perform our analysis on a sample of 2,789 companies from 34 countries across Europe. Using a cross-sectional data of the recent period of 2015, we report several findings which expand the understanding on the role of firm-specific corruption in determining the financial performance of the firm. The outcomes of the econometric analysis corroborate our hypotheses that firm-specific corruption at different levels reduces its market-based performance (i.e. capability of firm to attract and finance the profitable investment opportunities and competitive advantage) as well as hinders to its accounting-based performance (the capability of firm to effectively utilize its resources).

The results of this analysis can be summarized as follows: First, the dummy variable of firm corruption as whole shows that corrupt firm negatively affects its economic value in terms of market as well as accounting performance. The underlying reasoning of this effect is that corrupt behavior of firm may be more likely to enhance flow of the unofficial or informal activities, thereby reducing the level of efficiency, transparency and increases the miss-allocation

of its capital and investment. The corrupt nature firm may be more likely to improve its operational and reputation costs, paying a large amount of money into the settlements of illegal or unethical matters in forms of penalties as well as the image damage in the market place, respectively. We assume that the secretive nature of corrupt or dishonest behaviour terminates the valuable information flow, communication, and coordination of the firm. Consequently, internal corrupt environment of firm nurtures the self-interest seeking of its actors (i.e. board members and executives), the problem of insufficient information, opportunistic behaviour, and poor governance thereby raising the agency conflicts among stakeholders of firm and reducing the performance.

Second, we investigate the role of internal individual units of corruption (board and management group members) impact on the financial performance of the firm. We empirically show that the board-level corruption (i.e. the percentage of corrupt or dishonest board of directors) negatively affects the financial performance of the firm. These findings are consistent with the view that the corrupt board members may be more likely to behave opportunistically. Such board members may be more willing to agree with the management decisions because of their social contacts, self-interest and financial ties with management or third parties. In result, the dishonest or illegal behaviour of board members may not let them perform their functions of monitoring and controlling well. This discretionary behavior of board members will cause of poor governance, higher level of managerial opportunism thereby increase agency conflicts between managers and shareholders and show adverse effects on financial performance of the firm.

Third, we show that the management-level corruption impact on firm performance is statistically significant which is consistent with firm-level and board-level corruption. The underlying reasoning for these adverse effects of executive corruption on firm performance is in line with principal-agent framework where executives are considered to behave opportunistically and prefer to maximize their personal wealth. We assume that every opportunistic executive attracts to do illegal, dishonest and criminal acts since they are fascinated by the incentives of corruption to endorse their private benefits. Since executives have information advantage on company which they operate, corrupt executives may exploit their skills, knowledge and power against the firm as well as may hide the essential information to cover-up their unethical, criminal, dishonest or illegal acts and pursue those short-term investments which improve their

incentives and personal wealth. Corruption at management-level increases the managerial opportunism, which leads to the agency conflicts, and information asymmetry and enhances the costs (lower productivity by misallocation of company resources and human capital, lower-level of investment, lack of trust, poor quality governance, and environmental issues or absence of corporate social responsibility of firm). This suggests that the level of corrupt executives will lower the financial performance of the firm.

Fourth, our empirical analysis improves the insights on the role of corporate corruption investigating one specific dimension of corruption i.e. the extent of political exposure of individual units (executives / board members), and then considering the role of gender in conditioning the effect of corruption on financial performance. We argue the role of PEPs in management or board of director, who hold influential positions and keep power to formulate and manipulate the important decision policies can be crucial for firm value. In line with agency theory and real-life examples (e.g. Enron case), we find that firms managed or governed by PEP executives / board members tend to have poor financial performance. We suggest that firms managed or governed by PEP executives/ board members may be more likely to have the problem of opportunism, and agency conflicts; moreover, PEP connections may undermine the quality of the management and board as these executives/ board members may not be fully dedicated to delivering the services to the firm as well as may be more self-interested in extracting heavy rents from company with respect to their positions in the government and legal system and thereby increase the costs of firm. It can also be possible that PEP alliances with firm apparently brings profits to the firm, but it also declines the demand of performance-based incentives and rewards to favouritism. Therefore, this suggests the intensity of PEP executives or board members can be assumed to create problems of opportunism, agency conflicts and poor-quality management and governance and in turn, poor the firm performance.

In addition to the main analysis, we show that gender-specific corruption turns out to play a significant role in determining the performance of the firm. Our findings report that the corrupt females are more harmful for the financial performance of the firm. We find that the corrupt female board members (or executives) are more negatively affect the long-term and short-term performance of the firm. The underlying reasoning for these strong negative effect is that females involved in corruption are not able to manage such situation as they may feel more fearful, nervous, emotional and less-confident and especially, in the presence of high risk of punishment,

finances and fire out. Further, by nature, the corrupt female board members (or executives) are more honest, more ethical and more reluctant to engage in corrupt or dishonest activities, may not be as smart (and confident) as their male counterparts to cover-up their unethical and untruthful tasks and they therefore fail to handle the risk of involvement in corrupt transactions and tasks and consequently, female corruption even amplifies the main negative effect of corruption on firm performance. These findings are consistent with the explanation of Frank et al. (2011), who argue that the degree of corrupt transaction failure increases in the presence of females. The outcomes of our study show that corruption is simply not acceptable in any form and at any level and suggest that corruption is detrimental in every situation. These findings consistent with “sands the wheel of the commerce” view of corruption at macro-level. The managerial implication of our study is that it is better to avoid female involvement in corrupt or dishonest activities as the incapability of females in dishonest or corrupt activities amplifies the main negative effect of corruption and leads the firm in even worse direction. The prior studies on nexus between corruption and gender argue that females reduce the level of corruption, however our study indirectly suggests to policy-makers to push the female representation in the firm because in this way, the firms will be probably less interested in corruption, since females in corruption are not good and the magnitude of negative effect of female corruption on firm performance is even stronger than the magnitude of negative effect of male corruption as female corruption make double the main effect of corruption. Thus, it seems that female damage more firm performance compared to male.

Future research should consider also role of the personal wealth, investigating if female that hit more strongly firm performance are also the one that get more personal advantages to be corrupted or it is that male, that are able to better deal with corruption are also better able to get more benefits to be corrupted. Thus, future research should implement the value of the firms jointly with the personal value the people can get to be involved in corrupted activities. It will also be remarkable to consider the time-specific effects through panel data, and particularly analysing the ex-ante and ex-post consequences of corruption on firm performance. Moreover, it would be worthy to add corporate social responsibility dimension to explore the effects of corruption on financial performance as the firm pervasiveness towards corruption as well as towards social responsibility could play a significant role to understand the corruption effects on corporate performance.

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## Tables

**Table 1- Sample Characteristics**

| No | Country        | Observations | Percentage | Year | No | Country            | Observations | Percentage | Year |
|----|----------------|--------------|------------|------|----|--------------------|--------------|------------|------|
| 1  | Austria        | 4            | 0.14       | 2015 | 18 | Luxembourg         | 14           | 0.5        | 2015 |
| 2  | Belgium        | 47           | 1.69       | 2015 | 19 | Malta              | 4            | 0.14       | 2015 |
| 3  | Bulgaria       | 70           | 2.51       | 2015 | 20 | Netherlands        | 28           | 1          | 2015 |
| 4  | Croatia        | 4            | 0.14       | 2015 | 21 | Norway             | 89           | 3.19       | 2015 |
| 5  | Cyprus         | 21           | 0.75       | 2015 | 22 | Poland             | 53           | 1.9        | 2015 |
| 6  | Czech Republic | 4            | 0.14       | 2015 | 23 | Portugal           | 25           | 0.9        | 2015 |
| 7  | Denmark        | 62           | 2.22       | 2015 | 24 | Romania            | 135          | 4.84       | 2015 |
| 8  | Estonia        | 7            | 0.25       | 2015 | 25 | Russian Federation | 51           | 1.83       | 2015 |
| 9  | Finland        | 103          | 3.69       | 2015 | 26 | Serbia             | 8            | 0.29       | 2015 |
| 10 | France         | 410          | 14.7       | 2015 | 27 | Slovakia           | 2            | 0.07       | 2015 |
| 11 | Germany        | 35           | 1.25       | 2015 | 28 | Slovenia           | 2            | 0.07       | 2015 |
| 12 | Greece         | 140          | 5.02       | 2015 | 29 | Spain              | 64           | 2.29       | 2015 |
| 13 | Hungary        | 4            | 0.14       | 2015 | 30 | Sweden             | 193          | 6.92       | 2015 |
| 14 | Iceland        | 11           | 0.39       | 2015 | 31 | Switzerland        | 130          | 4.66       | 2015 |
| 15 | Ireland        | 45           | 1.61       | 2015 | 32 | Turkey             | 24           | 0.86       | 2015 |
| 16 | Italy          | 162          | 5.81       | 2015 | 33 | Ukraine            | 11           | 0.39       | 2015 |
| 17 | Lithuania      | 7            | 0.25       | 2015 | 34 | United Kingdom     | 820          | 29.4       | 2015 |

  

| No | Industry Sectors   | Observations | Percentage |
|----|--|--------------|------------|
| 1  | A - Agriculture, forestry and fishing                                    | 40           | 1.43       |
| 2  | B - Mining and quarrying   | 165          | 5.92       |
| 3  | C - Manufacturing  | 1,230        | 44.1       |
| 4  | D - Electricity, gas, steam and air conditioning supply                  | 87           | 3.12       |
| 5  | E - Water supply; sewerage, waste management and remediation activities  | 24           | 0.86       |
| 6  | F - Construction   | 101          | 3.62       |
| 7  | G - Wholesale and retail trade; repair of motor vehicles and motorcycles | 225          | 8.07       |
| 8  | H - Transportation and storage   | 104          | 3.73       |
| 9  | I - Accommodation and food service activities                            | 64           | 2.29       |
| 10 | J - Information and communication  | 357          | 12.8       |
| 11 | L - Real estate activities   | 28           | 1          |
| 12 | M - Professional, scientific and technical activities                    | 169          | 6.06       |
| 13 | N - Administrative and support service activities                        | 94           | 3.37       |
| 14 | Q - Human health and social work activities                              | 40           | 1.43       |
| 15 | R - Arts, entertainment and recreation                                   | 42           | 1.51       |
| 16 | S - Other service activities   | 19           | 0.68       |

**Table 2 - Variable definitions and data sources**

| <b>Variables</b>  | <b>Description</b>  |
|---|---|
| <b><i>Performance Measures</i></b>  |   |
| Market to Book Ratio  | Ratio of market value of firm to book value of total assets, where market value of firm is the difference between book value of total assets and capital plus market capitalization   |
| Return on Assets (ROA)  | Ratio of net income to total assets   |
| <b><i>Other Measures of Performance</i></b>   |   |
| Equity MTB  | Ratio of market value of equity to book value of equity, where market value of equity is the difference between equity and reserve minus capital plus market capitalization (i.e. multiplication of number of outstanding shares and share price)   |
| Return on Investment (ROI)  | Ratio of earnings before interest and tax to total assets   |
| <b><i>Corporate Fraud (Corruption) Variables</i></b>  |   |
| Firm Corrupt Dummy  | A dummy variable that equals to one if firm is alleged for involvement in any kind of sanction, enforcement, PEP or adverse media list, and zero otherwise  |
| Firm Politically Exposed Dummy  | A dummy variable that equals to one if firm is politically exposed, and zero otherwise  |
| Percentage of Corrupt Board Members   | Percentage of corrupt board members with respect to total board members in the firm   |
| Percentage of Board Members Politically Exposed   | Percentage of politically exposed board members with respect to total board members in the firm   |
| Percentage of Corrupt Executives  | Percentage of corrupt executives with respect to total executives in the firm   |
| Percentage of Executives Politically Exposed  | Percentage of politically exposed executives with respect to total executives in the firm   |
| Percentage of Corrupt Senior Executives   | Percentage of corrupt senior executives with respect to total executives in the firm  |
| Percentage of Senior Executives Politically Exposed   | Percentage of politically exposed senior executives with respect to total executives in the firm  |
| Percentage of Corrupt Female Board Members  | Percentage of corrupt female board members with respect to total board members in the firm  |
| Percentage of Corrupt Female Executives   | Percentage of corrupt female executives with respect to total executives in the firm  |
| <b><i>Control Variables: Firm Characteristics</i></b>   |   |
| Firm Age  | Natural logarithm of firm age where firm age has calculated from date of incorporation of firm  |
| Firm Size   | Natural logarithm of total assets   |
| Financial Leverage  | Ratio between financial debt and total assets, where financial debt comprises short-term financial debt (i.e. to credit institutions, the part of long-term debt which is payable within a year, bonds, etc.) while long-term financial debts (i.e. to credit institutions, (loans, credits), bonds with maturity more than a year) |
| Assets Growth   | Percentage variation of total assets from previous period   |
| Tangibility   | Ratio of tangible fixed assets to total assets  |
| Ownership   | Percentage of direct and indirect ownership of the top one largest shareholder  |
| R&D Intensity   | Ratio of research and development expenses to total assets  |
| <b><i>Control Variables: Governance Variables</i></b>   |   |
| Board Size  | Natural logarithm of total number of board of directors in the firm   |
| Board Gender Diversity  | Percentage of female board member with respect to total board members   |
| <b><i>Control Variables: Board/Management Characteristics</i></b>   |   |
| Average Executives Age  | Average age of executives' age in the firm  |
| Average Board Age   | Average age of board members' age in the firm   |
| <b><i>Instrumental Variables</i></b>  |   |
| Industry Mean of Corrupt Board  | Average of corrupt board members with respect to total board members in specified industry  |
| Industry Mean of Corrupt Executives   | Average of corrupt executives with respect to total executives in specified industry  |
| <b>Note:</b> The table reports the variables definitions. All the above-mentioned variables are the calculation of authors using Orbis electronic database. |   |

**Table 3 - Descriptive Statistics**

The Table reports descriptive statistics for all variables used in the empirical analysis. All the variables are defined in Table 1.

Panel A: Continuous Variables

| Variables   | Mean    | Median | SD       | Min    | Quartile 1 | Quartile 3 | Max       |
|---|---------|--------|----------|--------|------------|------------|-----------|
| Market to Book Ratio                                | 0.846   | 0.955  | 0.345    | -2.948 | 0.846      | 0.989      | 2.492     |
| Equity MTB  | 0.680   | 0.908  | 0.977    | -6.682 | 0.672      | 0.981      | 4.693     |
| Return on Assets (ROA)                              | -0.025  | 0.026  | 0.231    | -1.620 | -0.028     | 0.065      | 0.368     |
| Return on Investment (ROI)                          | 0.009   | 0.048  | 0.204    | -1.180 | -0.004     | 0.093      | 0.414     |
| Percentage of Corrupt Board Members                 | 0.156   | 0.111  | 0.196    | 0.000  | 0.000      | 0.231      | 1.000     |
| Percentage of Politically Exposed Board Members     | 0.106   | 0.000  | 0.164    | 0.000  | 0.000      | 0.167      | 1.000     |
| Percentage of Corrupt Executives                    | 0.115   | 0.034  | 0.163    | 0.000  | 0.000      | 0.182      | 1.000     |
| Percentage of Politically Exposed Executives        | 0.130   | 0.000  | 0.658    | 0.000  | 0.000      | 0.133      | 25.000    |
| Percentage of Corrupt Senior Executives             | 0.122   | 0.000  | 0.200    | 0.000  | 0.000      | 0.200      | 1.000     |
| Percentage of Senior Executives Politically Exposed | 0.082   | 0.000  | 0.170    | 0.000  | 0.000      | 0.111      | 1.000     |
| Percentage of Corrupt Female Board Members          | 0.027   | 0.000  | 0.065    | 0.000  | 0.000      | 0.000      | 1.000     |
| Percentage of Corrupt Female Executives             | 0.014   | 0.000  | 0.046    | 0.000  | 0.000      | 0.000      | 0.500     |
| Average Board Age                                   | 56.358  | 56.500 | 6.075    | 26.000 | 53.000     | 60.000     | 81.000    |
| Average Executives Age                              | 53.853  | 54.000 | 6.126    | 26.000 | 50.400     | 57.333     | 88.000    |
| Board Size  | 8.214   | 8.000  | 4.462    | 1.000  | 5.000      | 11.000     | 37.000    |
| Board Gender Diversity                              | 0.163   | 0.143  | 0.149    | 0.000  | 0.000      | 0.250      | 1.000     |
| Firm Age (in years)                                 | 42.235  | 25.000 | 43.978   | 1.000  | 15.000     | 55.000     | 496.000   |
| Firm Size (in million €)                            | 3729.62 | 185.08 | 17481.30 | 0.276  | 40.66      | 1151.76    | 381935.09 |
| Financial Leverage                                  | 0.208   | 0.178  | 0.181    | 0.000  | 0.045      | 0.323      | 0.631     |
| Assets Growth                                       | 0.140   | 0.038  | 0.529    | -0.673 | -0.044     | 0.158      | 3.955     |
| Tangibility   | 0.249   | 0.176  | 0.242    | 0.000  | 0.044      | 0.389      | 0.876     |
| Ownership   | 0.315   | 0.259  | 0.244    | 0.001  | 0.113      | 0.498      | 0.936     |
| R&D Intensity                                       | 0.016   | 0.000  | 0.043    | 0.000  | 0.000      | 0.004      | 0.252     |
| Industry Mean of Corrupt Board                      | 1.456   | 1.186  | 0.797    | 0.000  | 1.000      | 1.604      | 5.333     |
| Industry Mean of Corrupt Executives                 | 1.299   | 1.176  | 0.785    | 0.000  | 0.769      | 1.412      | 4.818     |
| Panel B: Dummy Variables                            |         |        |          |        |            |            |           |
| Firm Corrupt Dummy                                  | 0.134   | 0.000  | 0.341    | 0.000  | 0.000      | 0.000      | 1.000     |
| Firm Politically Exposed Dummy                      | 0.006   | 0.000  | 0.076    | 0.000  | 0.000      | 0.000      | 1.000     |

**Table 3 – Correlation matrix**

| No | Variables   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23   |  |
|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|
| 1  | Market to Book Ratio                                | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 2  | Equity MTB  | 0.43  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 3  | Return on Assets (ROA)                              | 0.31  | 0.17  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 4  | Return on Investment (ROI)                          | 0.29  | 0.16  | 0.91  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 5  | Firm Corrupt Dummy                                  | 0.03  | 0.00  | 0.05  | 0.06  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 6  | Firm Politically Exposed Dummy                      | 0.00  | -0.03 | 0.02  | 0.03  | 0.19  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 7  | Percentage of Corrupt Board Members                 | 0.03  | 0.04  | 0.06  | 0.07  | 0.31  | 0.05  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 8  | Percentage of Politically Exposed Board Members     | 0.04  | 0.04  | 0.06  | 0.07  | 0.32  | 0.05  | 0.84  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 9  | Percentage of Corrupt Executives                    | -0.02 | 0.01  | 0.03  | 0.03  | 0.22  | 0.03  | 0.61  | 0.50  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 10 | Percentage of Politically Exposed Executives        | 0.00  | 0.00  | 0.03  | 0.03  | 0.13  | 0.01  | 0.28  | 0.24  | 0.32  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 11 | Percentage of Corrupt Senior Executives             | -0.01 | 0.02  | 0.02  | 0.03  | 0.21  | 0.02  | 0.58  | 0.49  | 0.86  | 0.27  | 1.00  |       |       |       |       |       |       |       |       |       |       |       |      |  |
| 12 | Percentage of Senior Executives Politically Exposed | 0.01  | 0.02  | 0.06  | 0.06  | 0.20  | 0.02  | 0.50  | 0.57  | 0.69  | 0.31  | 0.85  | 1.00  |       |       |       |       |       |       |       |       |       |       |      |  |
| 13 | Average Board Age                                   | 0.02  | -0.01 | 0.03  | 0.03  | 0.04  | 0.02  | 0.08  | 0.06  | 0.03  | 0.05  | 0.05  | 0.01  | 1.00  |       |       |       |       |       |       |       |       |       |      |  |
| 14 | Average Executives Age                              | -0.04 | -0.03 | 0.00  | -0.01 | 0.00  | 0.02  | -0.01 | -0.06 | 0.04  | 0.01  | 0.03  | -0.01 | 0.58  | 1.00  |       |       |       |       |       |       |       |       |      |  |
| 15 | Board Size  | 0.16  | 0.09  | 0.08  | 0.10  | 0.24  | 0.06  | 0.20  | 0.19  | 0.14  | -0.07 | 0.13  | 0.11  | 0.17  | 0.11  | 1.00  |       |       |       |       |       |       |       |      |  |
| 16 | Board Gender Diversity                              | 0.10  | 0.07  | 0.14  | 0.14  | 0.03  | -0.01 | 0.01  | 0.05  | -0.07 | -0.06 | -0.05 | -0.01 | -0.03 | -0.05 | 0.23  | 1.00  |       |       |       |       |       |       |      |  |
| 17 | Firm Age (in years)                                 | 0.08  | 0.03  | 0.15  | 0.16  | 0.13  | -0.01 | 0.09  | 0.10  | 0.04  | 0.04  | 0.04  | 0.05  | 0.13  | 0.07  | 0.14  | 0.10  | 1.00  |       |       |       |       |       |      |  |
| 18 | Firm Size (in million €)                            | 0.07  | 0.04  | 0.05  | 0.04  | 0.30  | 0.01  | 0.23  | 0.22  | 0.16  | 0.13  | 0.15  | 0.14  | 0.10  | 0.06  | 0.29  | 0.06  | 0.11  | 1.00  |       |       |       |       |      |  |
| 19 | Financial Leverage                                  | -0.05 | -0.09 | -0.11 | -0.05 | 0.10  | 0.02  | 0.03  | 0.04  | 0.01  | -0.02 | 0.03  | 0.04  | 0.03  | -0.02 | 0.14  | 0.01  | 0.04  | 0.08  | 1.00  |       |       |       |      |  |
| 20 | Assets Growth                                       | 0.06  | 0.06  | 0.06  | 0.02  | -0.10 | -0.02 | -0.07 | -0.07 | -0.04 | -0.02 | -0.03 | -0.04 | -0.04 | -0.01 | 0.00  | 0.00  | -0.09 | -0.02 | -0.10 | 1.00  |       |       |      |  |
| 21 | Tangibility   | 0.00  | -0.01 | 0.07  | 0.08  | 0.15  | 0.05  | 0.12  | 0.11  | 0.09  | 0.06  | 0.09  | 0.11  | -0.03 | 0.02  | -0.03 | -0.05 | 0.11  | 0.05  | 0.27  | -0.17 | 1.00  |       |      |  |
| 22 | Ownership   | -0.02 | -0.03 | 0.07  | 0.07  | 0.04  | 0.04  | -0.02 | -0.01 | -0.04 | -0.01 | -0.04 | -0.01 | -0.08 | -0.08 | -0.13 | 0.02  | 0.07  | -0.03 | 0.03  | -0.05 | 0.16  | 1.00  |      |  |
| 23 | R&D Intensity                                       | -0.02 | -0.02 | -0.18 | -0.23 | -0.04 | -0.02 | -0.02 | -0.01 | -0.02 | 0.02  | -0.03 | -0.02 | 0.07  | 0.04  | 0.02  | -0.03 | -0.08 | -0.02 | -0.13 | 0.11  | -0.21 | -0.10 | 1.00 |  |



**Table 5.1: Main OLS regression results for the impact of firm-specific corruption on firm value and accounting performance**

The table presents results of OLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. The independent variables (i.e. main variable of interest) are: (1) *Firm Corrupt Dummy*, a dummy variable that equals to one if firm is alleged for the involvement in any kind of sanction, enforcement, PEP or adverse media list and zero, otherwise; (2) *Percentage of Corrupt Board Members*, a percentage of corrupt board members with respect to total board members in the firms; (3) *Percentage of Corrupt Executives*, a percentage of corrupt executives with respect to total executives in the firms; and (4) *Percentage of Corrupt Senior Executives*, a percentage of corrupt senior executives with respect to total executives in the firms. In Columns I, II, III and IV, we present the estimation results of corruption impact on *Market to Book Ratio* (i.e. Market value of firm). In Columns V, VI, VII and VIII, we report the estimation results of corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                   | Dependent Variables  |                      |                      |                      |                        |                      |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------------|
|   | Market to Book Ratio |                      |                      |                      | Return on Assets (ROA) |                      |                      |                      |
|   | (1)                  | (2)                  | (3)                  | (4)                  | (5)                    | (6)                  | (7)                  | (8)                  |
| Firm Corrupt Dummy                      | -0.071***<br>(0.000) |                      |                      |                      | -0.052***<br>(0.000)   |                      |                      |                      |
| Percentage of Corrupt Board Members     |                      | -0.098**<br>(0.027)  |                      |                      |                        | -0.053***<br>(0.005) |                      |                      |
| Percentage of Corrupt Executives        |                      |                      | -0.112*<br>(0.073)   |                      |                        |                      | -0.033<br>(0.280)    |                      |
| Percentage of Corrupt Senior Executives |                      |                      |                      | -0.068*<br>(0.094)   |                        |                      |                      | -0.021<br>(0.338)    |
| Average Board Age                       | -0.003**<br>(0.019)  | -0.003**<br>(0.031)  |                      |                      | -0.000<br>(0.849)      | -0.000<br>(0.958)    |                      |                      |
| Average Executives Age                  |                      |                      | -0.003**<br>(0.027)  | -0.003**<br>(0.027)  |                        |                      | 0.000<br>(0.848)     | 0.000<br>(0.849)     |
| Board Size                              | -0.006***<br>(0.001) | -0.006***<br>(0.000) | -0.006***<br>(0.000) | -0.006***<br>(0.000) | -0.008***<br>(0.000)   | -0.008***<br>(0.000) | -0.008***<br>(0.000) | -0.008***<br>(0.000) |
| Board Gender Diversity                  | -0.025<br>(0.600)    | -0.024<br>(0.616)    | -0.018<br>(0.695)    | -0.015<br>(0.743)    | 0.120**<br>(0.000)     | 0.122**<br>(0.000)   | 0.122**<br>(0.000)   | 0.123**<br>(0.000)   |
| Firm Age                                | -0.008<br>(0.264)    | -0.008<br>(0.242)    | -0.008<br>(0.261)    | -0.008<br>(0.241)    | 0.024***<br>(0.000)    | 0.024***<br>(0.000)  | 0.024***<br>(0.000)  | 0.023***<br>(0.000)  |
| Firm Size                               | 0.066***<br>(0.000)  | 0.066***<br>(0.000)  | 0.063***<br>(0.000)  | 0.063***<br>(0.000)  | 0.047***<br>(0.000)    | 0.046***<br>(0.000)  | 0.045***<br>(0.000)  | 0.045***<br>(0.000)  |
| Financial Leverage                      | -0.301***<br>(0.000) | -0.300***<br>(0.000) | -0.300***<br>(0.000) | -0.299***<br>(0.000) | -0.308***<br>(0.000)   | -0.307***<br>(0.000) | -0.306***<br>(0.000) | -0.305***<br>(0.000) |
| Assets Growth                           | 0.033**<br>(0.014)   | 0.033**<br>(0.013)   | 0.034***<br>(0.009)  | 0.035***<br>(0.008)  | 0.039***<br>(0.004)    | 0.040***<br>(0.003)  | 0.040***<br>(0.003)  | 0.040***<br>(0.003)  |
| Tangibility                             | 0.099***<br>(0.004)  | 0.100***<br>(0.003)  | 0.102***<br>(0.003)  | 0.103***<br>(0.003)  | 0.063***<br>(0.003)    | 0.064***<br>(0.003)  | 0.063***<br>(0.003)  | 0.063***<br>(0.003)  |
| Ownership                               | -0.010<br>(0.768)    | -0.011<br>(0.743)    | -0.008<br>(0.806)    | -0.008<br>(0.793)    | 0.022<br>(0.182)       | 0.022<br>(0.190)     | 0.023<br>(0.167)     | 0.023<br>(0.171)     |
| R&D Intensity                           | -0.033<br>(0.888)    | -0.040<br>(0.865)    | -0.054<br>(0.821)    | -0.058<br>(0.806)    | -0.812***<br>(0.000)   | -0.818***<br>(0.000) | -0.823***<br>(0.000) | -0.824***<br>(0.000) |
| Industry Fixed Effects                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  | Yes                  |
| Country Fixed Effects                   | Yes                  | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  | Yes                  |
| F Statistic                             | 7.202                | 6.276                | 6.377                | 6.341                | 6.840                  | 6.872                | 6.864                | 6.862                |
| R Squared                               | 0.173                | 0.172                | 0.172                | 0.171                | 0.266                  | 0.263                | 0.262                | 0.262                |
| Observations                            | 2789                 | 2789                 | 2789                 | 2789                 | 2789                   | 2789                 | 2789                 | 2789                 |

**Table 5.2: The Two-Stage Least Squares regression results for the impact of firm-specific corruption on firm value and accounting performance**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. The independent variables (i.e. main variable of interest) are: (1) *Firm Corrupt Dummy*, a dummy variable that equals to one if firm is alleged for the involvement in any kind of sanction, enforcement, PEP or adverse media list and zero, otherwise; (2) *Percentage of Corrupt Board Members*, a percentage of corrupt board members with respect to total board members in the firms; (3) *Percentage of Corrupt Executives*, a percentage of corrupt executives with respect to total executives in the firms; and (4) *Percentage of Corrupt Senior Executives*, a percentage of corrupt senior executives with respect to total executives in the firms. In Column I, II, III, IV, V, VI, VII and VIII, the variables *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, and *Percentage of Corrupt Senior Executives* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. Furthermore, Columns I, II, III and IV show the impact of corruption on *Market to Book Ratio* (i.e. Market Value of firm). In Columns V, VI, VII and VIII, we report the estimation results of corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of excluded instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap Wald rk F statistic are the tests of relevance and weakness of instruments. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                   | Dependent Variables  |                      |                      |                      |                        |                      |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------------|
|   | Market to Book Ratio |                      |                      |                      | Return on Assets (ROA) |                      |                      |                      |
|   | (1)                  | (2)                  | (3)                  | (4)                  | (5)                    | (6)                  | (7)                  | (8)                  |
| Firm Corrupt Dummy                      | -0.808**<br>(0.027)  |                      |                      |                      | -0.800***<br>(0.006)   |                      |                      |                      |
| Percentage of Corrupt Board Members     |                      | -0.810***<br>(0.008) |                      |                      |                        | -0.614***<br>(0.000) |                      |                      |
| Percentage of Corrupt Executives        |                      |                      | -1.010**<br>(0.013)  |                      |                        |                      | -0.997***<br>(0.002) |                      |
| Percentage of Corrupt Senior Executives |                      |                      |                      | -0.890**<br>(0.014)  |                        |                      |                      | -0.877***<br>(0.002) |
| Average Board Age                       | -0.003*<br>(0.097)   | -0.001<br>(0.411)    |                      |                      | 0.001<br>(0.617)       | 0.001<br>(0.107)     |                      |                      |
| Average Executives Age                  |                      |                      | -0.003**<br>(0.042)  | -0.003**<br>(0.048)  |                        |                      | 0.000<br>(0.658)     | 0.000<br>(0.629)     |
| Board Size                              | 0.001<br>(0.886)     | -0.006***<br>(0.001) | -0.004**<br>(0.033)  | -0.005**<br>(0.012)  | -0.001<br>(0.683)      | -0.008***<br>(0.000) | -0.006***<br>(0.001) | -0.007***<br>(0.000) |
| Board Gender Diversity                  | -0.076<br>(0.222)    | -0.052<br>(0.321)    | -0.073<br>(0.193)    | -0.060<br>(0.269)    | 0.068<br>(0.138)       | 0.100***<br>(0.002)  | 0.064<br>(0.102)     | 0.076**<br>(0.048)   |
| Firm Age                                | -0.001<br>(0.876)    | -0.006<br>(0.401)    | -0.005<br>(0.513)    | -0.008<br>(0.299)    | 0.030***<br>(0.000)    | 0.025***<br>(0.000)  | 0.027***<br>(0.000)  | 0.024***<br>(0.000)  |
| Firm Size                               | 0.097***<br>(0.000)  | 0.085***<br>(0.000)  | 0.076***<br>(0.000)  | 0.076***<br>(0.000)  | 0.078***<br>(0.000)    | 0.062***<br>(0.000)  | 0.059***<br>(0.000)  | 0.059***<br>(0.000)  |
| Financial Leverage                      | -0.334***<br>(0.000) | -0.318***<br>(0.000) | -0.303***<br>(0.000) | -0.284***<br>(0.000) | -0.343***<br>(0.000)   | -0.322***<br>(0.000) | -0.309***<br>(0.000) | -0.290***<br>(0.000) |
| Assets Growth                           | 0.016<br>(0.281)     | 0.020<br>(0.148)     | 0.023*<br>(0.093)    | 0.025*<br>(0.064)    | 0.023<br>(0.118)       | 0.029**<br>(0.025)   | 0.028**<br>(0.042)   | 0.030**<br>(0.028)   |
| Tangibility                             | 0.093**<br>(0.023)   | 0.099***<br>(0.006)  | 0.096***<br>(0.008)  | 0.100***<br>(0.007)  | 0.057*<br>(0.074)      | 0.063***<br>(0.007)  | 0.057**<br>(0.031)   | 0.061**<br>(0.025)   |
| Ownership                               | -0.021<br>(0.561)    | -0.027<br>(0.428)    | -0.010<br>(0.762)    | -0.019<br>(0.592)    | 0.010<br>(0.703)       | 0.009<br>(0.646)     | 0.020<br>(0.338)     | 0.012<br>(0.616)     |
| R&D Intensity                           | 0.115                | 0.014                | -0.030               | -0.078               | -0.661***              | -0.776***            | -0.797***            | -0.845***            |

|                                     |                   |                    |                    |                    |                   |                    |                    |                    |
|-------------------------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
|                                     | (0.649)           | (0.952)            | (0.902)            | (0.748)            | (0.001)           | (0.000)            | (0.000)            | (0.000)            |
| Industry Fixed Effects              | Yes               | Yes                | Yes                | Yes                | Yes               | Yes                | Yes                | Yes                |
| Country Fixed Effects               | Yes               | Yes                | Yes                | Yes                | Yes               | Yes                | Yes                | Yes                |
| Hansen J Statistic (p-value)        | 0.958<br>(0.328)  | Exactly Identified | Exactly Identified | Exactly Identified | 0.006<br>(0.939)  | Exactly Identified | Exactly Identified | Exactly Identified |
| Kleibergen-Paap rk LM statistic     | 11.534<br>(0.003) | 30.953<br>(0.000)  | 19.683<br>(0.000)  | 19.592<br>(0.000)  | 11.534<br>(0.003) | 30.953<br>(0.000)  | 19.683<br>(0.000)  | 19.592<br>(0.000)  |
| Kleibergen-Paap Wald rk F statistic | 5.649             | 32.967             | 20.958             | 20.527             | 5.649             | 32.967             | 20.958             | 20.527             |
| Observations                        | 2789              | 2789               | 2789               | 2789               | 2789              | 2789               | 2789               | 2789               |

**Table 6.1: OLS regression results for the impact of firm-specific corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of OLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. The independent variables (i.e. main variable of interest) are: (1) *Firm Politically Exposed Dummy*, a dummy variable that equals to one if firm is alleged for involvement in any kind of illicit activities through its political connections, and zero otherwise; (2) *Percentage of Politically Exposed Board Members*, a percentage of politically exposed board members with respect to total board members in the firms; (3) *Percentage of Politically Exposed Executives*, a percentage of politically exposed executives with respect to total executives in the firms; and (4) *Percentage of Senior Executives Politically Exposed*, a percentage of politically exposed senior executives with respect to total executives in the firms. In Columns I, II, III and IV, we present the estimation results of corruption indicators impact on *Market to Book Ratio* (i.e. Market value of firm). In Columns V, VI, VII and VIII, we report the estimation results of corruption measures impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                               | Dependent Variables  |           |           |           |                        |           |           |           |
|---|----------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
|   | Market to Book Ratio |           |           |           | Return on Assets (ROA) |           |           |           |
|   | (1)                  | (2)       | (3)       | (4)       | (5)                    | (6)       | (7)       | (8)       |
| Firm  | -0.094*              |           |           |           | 0.005                  |           |           |           |
| Politically Exposed Dummy                           | (0.069)              |           |           |           | (0.820)                |           |           |           |
| Percentage of Politically Exposed Board Members     |                      | -0.107*** |           |           |                        | -0.059*** |           |           |
|   |                      | (0.007)   |           |           |                        | (0.004)   |           |           |
| Percentage of Politically Exposed Executives        |                      |           | -0.014**  |           |                        |           | -0.006    |           |
|   |                      |           | (0.047)   |           |                        |           | (0.141)   |           |
| Percentage of Senior Executives Politically Exposed |                      |           |           | -0.054    |                        |           |           | 0.020     |
|   |                      |           |           | (0.173)   |                        |           |           | (0.302)   |
| Average Board Age                                   | -0.003**             | -0.003**  |           |           | -0.000                 | -0.000    |           |           |
|   | (0.019)              | (0.024)   |           |           | (0.792)                | (0.890)   |           |           |
| Average Executives Age                              |                      |           | -0.003**  | -0.003**  |                        |           | 0.000     | 0.000     |
|   |                      |           | (0.027)   | (0.024)   |                        |           | (0.846)   | (0.845)   |
| Board Size  | -0.007***            | -0.006*** | -0.007*** | -0.006*** | -0.008***              | -0.008*** | -0.009*** | -0.008*** |
|   | (0.000)              | (0.000)   | (0.000)   | (0.000)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Board Gender Diversity                              | -0.020               | -0.019    | -0.015    | -0.013    | 0.124***               | 0.124***  | 0.123***  | 0.125***  |
|   | (0.676)              | (0.680)   | (0.752)   | (0.787)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Firm Age  | -0.008               | -0.008    | -0.008    | -0.008    | 0.024***               | 0.024***  | 0.023***  | 0.023***  |
|   | (0.224)              | (0.252)   | (0.247)   | (0.237)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Firm Size   | 0.063***             | 0.065***  | 0.062***  | 0.062***  | 0.045***               | 0.046***  | 0.045***  | 0.045***  |
|   | (0.000)              | (0.000)   | (0.000)   | (0.000)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Financial Leverage                                  | -0.297***            | -0.299*** | -0.301*** | -0.299*** | -0.306***              | -0.307*** | -0.306*** | -0.306*** |
|   | (0.000)              | (0.000)   | (0.000)   | (0.000)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Assets Growth                                       | 0.034**              | 0.033**   | 0.036***  | 0.035***  | 0.041***               | 0.040***  | 0.040***  | 0.041***  |

|                        |          |          |          |          |           |           |           |           |
|------------------------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
|                        | (0.011)  | (0.013)  | (0.008)  | (0.008)  | (0.003)   | (0.003)   | (0.003)   | (0.003)   |
| Tangibility            | 0.100*** | 0.101*** | 0.102*** | 0.104*** | 0.064***  | 0.064***  | 0.063***  | 0.063***  |
|                        | (0.003)  | (0.003)  | (0.003)  | (0.003)  | (0.003)   | (0.003)   | (0.003)   | (0.003)   |
| Ownership              | -0.007   | -0.010   | -0.009   | -0.008   | 0.023     | 0.022     | 0.022     | 0.023     |
|                        | (0.822)  | (0.755)  | (0.785)  | (0.807)  | (0.170)   | (0.185)   | (0.175)   | (0.163)   |
| R&D Intensity          | -0.050   | -0.039   | -0.048   | -0.057   | -0.822*** | -0.818*** | -0.820*** | -0.823*** |
|                        | (0.832)  | (0.866)  | (0.838)  | (0.811)  | (0.000)   | (0.000)   | (0.000)   | (0.000)   |
| Industry Fixed Effects | Yes      | Yes      | Yes      | Yes      | Yes       | Yes       | Yes       | Yes       |
| Country Fixed Effects  | Yes      | Yes      | Yes      | Yes      | Yes       | Yes       | Yes       | Yes       |
| F Statistic            | 7.887    | 6.284    | 6.567    | 6.361    | 6.824     | 6.881     | 6.857     | 6.892     |
| R Squared              | 0.170    | 0.172    | 0.171    | 0.171    | 0.261     | 0.263     | 0.262     | 0.262     |
| Observations           | 2789     | 2789     | 2789     | 2789     | 2789      | 2789      | 2789      | 2789      |

**Table 6.2: The Two-Stage Least Squares regression results for the impact of firm-specific corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. In Columns I, II, III, and IV, we present the estimation results of firm specific corruption impact on *Market to Book Ratio* (i.e. Market value of firm). In Column I, II, III, IV, V, VI, VII and VIII, the variables *Firm Politically Exposed Dummy*, *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives*, *Percentage of Senior Executives Politically Exposed* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. In Columns I, II, III, and IV, we report the estimation results of firm-specific corruption impact on *Market to Book Ratio* (i.e. market-based performance of the firm). In Columns V, VI, VII and VIII, we report the estimation results of firm specific corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for the validity of used instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap rk Wald F statistic are tests of relevance and weakness of instruments. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                               | Dependent Variables  |           |           |           |                        |           |           |           |
|---|----------------------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|
|   | Market to Book Ratio |           |           |           | Return on Assets (ROA) |           |           |           |
|   | (1)                  | (2)       | (3)       | (4)       | (5)                    | (6)       | (7)       | (8)       |
| Firm  | -4.093               |           |           |           | -1.965                 |           |           |           |
| Politically Exposed Dummy                           | (0.189)              |           |           |           | (0.180)                |           |           |           |
| Percentage of Politically Exposed Board Members     |                      | -1.007**  |           |           |                        | -0.763*** |           |           |
| Percentage of Politically Exposed Executives        |                      | (0.010)   | -0.348**  |           |                        | (0.001)   | -0.343**  |           |
| Percentage of Senior Executives Politically Exposed |                      |           | (0.042)   | -1.212**  |                        |           | (0.010)   | -1.196*** |
| Average Board Age                                   | -0.001               | -0.002    |           | (0.027)   | 0.001                  | 0.001     |           | (0.005)   |
| Average Executives Age                              | (0.601)              | (0.186)   | -0.003*   | -0.004**  | (0.382)                | (0.303)   | 0.001     | -0.001    |
| Board Size  | -0.006**             | -0.006*** | -0.014*** | -0.006*** | -0.008***              | -0.008*** | -0.016*** | -0.008*** |
| Board Gender Diversity                              | (0.036)              | (0.002)   | (0.003)   | (0.008)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
| Firm Age  | -0.014               | -0.016    | -0.086    | -0.033    | 0.127***               | 0.126***  | 0.051     | 0.103**   |
| Firm Size   | (0.818)              | (0.758)   | (0.142)   | (0.543)   | (0.000)                | (0.000)   | (0.185)   | (0.011)   |
| Financial Leverage                                  | -0.012               | -0.004    | -0.006    | -0.009    | 0.022***               | 0.027***  | 0.025***  | 0.022***  |
| Assets Growth                                       | (0.179)              | (0.559)   | (0.435)   | (0.250)   | (0.000)                | (0.000)   | (0.000)   | (0.001)   |
| Tangibility   | 0.069***             | 0.083***  | 0.085***  | 0.078***  | 0.048***               | 0.060***  | 0.068***  | 0.061***  |
|   | (0.000)              | (0.000)   | (0.000)   | (0.000)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
|   | -0.285***            | -0.315*** | -0.334*** | -0.284*** | -0.300***              | -0.319*** | -0.339*** | -0.289*** |
|   | (0.000)              | (0.000)   | (0.000)   | (0.000)   | (0.000)                | (0.000)   | (0.000)   | (0.000)   |
|   | 0.029**              | 0.020     | 0.028*    | 0.025*    | 0.038***               | 0.030**   | 0.033**   | 0.030**   |
|   | (0.045)              | (0.138)   | (0.051)   | (0.071)   | (0.006)                | (0.024)   | (0.024)   | (0.036)   |
|   | 0.116**              | 0.109***  | 0.094***  | 0.125***  | 0.072**                | 0.070***  | 0.055**   | 0.086***  |
|   | (0.022)              | (0.004)   | (0.008)   | (0.004)   | (0.010)                | (0.003)   | (0.021)   | (0.006)   |

|                                     |                   |                    |                    |                    |                      |                      |                      |                      |
|-------------------------------------|-------------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|
| Ownership                           | 0.040<br>(0.516)  | -0.024<br>(0.472)  | -0.037<br>(0.286)  | -0.014<br>(0.709)  | 0.046<br>(0.116)     | 0.011<br>(0.572)     | -0.006<br>(0.795)    | 0.017<br>(0.525)     |
| R&D Intensity                       | -0.158<br>(0.531) | 0.026<br>(0.911)   | 0.140<br>(0.616)   | -0.057<br>(0.816)  | -0.875***<br>(0.000) | -0.766***<br>(0.000) | -0.629***<br>(0.006) | -0.824***<br>(0.000) |
| Industry Fixed Effects              | Yes               | Yes                | Yes                | Yes                | Yes                  | Yes                  | Yes                  | Yes                  |
| Country Fixed Effects               | Yes               | Yes                | Yes                | Yes                | Yes                  | Yes                  | Yes                  | Yes                  |
| Hansen J Statistic (p-value)        | 1.636<br>(0.201)  | Exactly identified | Exactly identified | Exactly identified | 7.712<br>(0.005)     | Exactly identified   | Exactly identified   | Exactly identified   |
| Kleibergen-Paap rk LM statistic     | 1.543<br>(0.205)  | 26.207<br>(0.000)  | 10.114<br>(0.001)  | 14.350<br>(0.000)  | 1.543<br>(0.205)     | 26.207<br>(0.000)    | 10.114<br>(0.001)    | 14.350<br>(0.000)    |
| Kleibergen-Paap rk Wald F statistic | 3.162             | 24.983             | 10.088             | 14.106             | 3.162                | 24.983               | 10.088               | 14.106               |
| Observations                        | 2789              | 2789               | 2789               | 2789               | 2789                 | 2789                 | 2789                 | 2789                 |

**Table 7.1: Main OLS regression results for the impact of gender based corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of OLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. In Columns I, II, and III, we present the estimation results of female specific corruption impact on *Market to Book Ratio* (i.e. Market value of firm). In Columns VI, V and VII, we report the estimation results of female specific corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                          | Dependent Variables  |                      |                      |                        |                      |                      |
|--|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
|  | Market to Book Ratio |                      |                      | Return on Assets (ROA) |                      |                      |
|  | (1)                  | (2)                  | (3)                  | (4)                    | (5)                  | (6)                  |
| Percentage of Corrupt Female Board Members     | -0.236**<br>(0.030)  |                      |                      | -0.058<br>(0.193)      |                      |                      |
| Percentage of Corrupt Female Executives        |                      | -0.042<br>(0.707)    |                      |                        | 0.061<br>(0.308)     |                      |
| Percentage of Corrupt Female Senior Executives |                      |                      | 0.025<br>(0.736)     |                        |                      | 0.067*<br>(0.078)    |
| Average Board Age                              | -0.003**<br>(0.020)  |                      |                      | -0.000<br>(0.814)      |                      |                      |
| Average Executives Age                         |                      | -0.003**<br>(0.025)  | -0.003**<br>(0.026)  |                        | 0.000<br>(0.845)     | 0.000<br>(0.836)     |
| Board Size                                     | -0.006***<br>(0.000) | -0.006***<br>(0.000) | -0.006***<br>(0.000) | -0.008***<br>(0.000)   | -0.008***<br>(0.000) | -0.008***<br>(0.000) |
| Board Gender Diversity                         | 0.011<br>(0.812)     | -0.010<br>(0.825)    | -0.012<br>(0.789)    | 0.131***<br>(0.000)    | 0.122***<br>(0.000)  | 0.122***<br>(0.000)  |
| Firm Age                                       | -0.008<br>(0.228)    | -0.008<br>(0.242)    | -0.008<br>(0.240)    | 0.024***<br>(0.000)    | 0.023***<br>(0.000)  | 0.023***<br>(0.000)  |
| Firm Size                                      | 0.064***<br>(0.000)  | 0.062***<br>(0.000)  | 0.061***<br>(0.000)  | 0.045***<br>(0.000)    | 0.045***<br>(0.000)  | 0.045***<br>(0.000)  |
| Financial Leverage                             | -0.298***<br>(0.000) | -0.300***<br>(0.000) | -0.300***<br>(0.000) | -0.306***<br>(0.000)   | -0.306***<br>(0.000) | -0.306***<br>(0.000) |
| Assets Growth                                  | 0.033**<br>(0.013)   | 0.036***<br>(0.008)  | 0.036***<br>(0.007)  | 0.040***<br>(0.003)    | 0.041***<br>(0.003)  | 0.041***<br>(0.003)  |
| Tangibility                                    | 0.100***<br>(0.004)  | 0.103***<br>(0.003)  | 0.103***<br>(0.003)  | 0.064***<br>(0.003)    | 0.064***<br>(0.003)  | 0.064***<br>(0.003)  |
| Ownership                                      | -0.008<br>(0.797)    | -0.008<br>(0.809)    | -0.007<br>(0.819)    | 0.023<br>(0.167)       | 0.023<br>(0.160)     | 0.024<br>(0.156)     |
| R&D Intensity                                  | -0.050<br>(0.831)    | -0.057<br>(0.810)    | -0.056<br>(0.812)    | -0.823***<br>(0.000)   | -0.823***<br>(0.000) | -0.823***<br>(0.000) |
| Industry Fixed Effects                         | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  |
| Country Fixed Effects                          | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  |
| F Statistic                                    | 7.486                | 6.775                | 6.788                | 6.858                  | 6.841                | 6.828                |
| R Squared                                      | 0.171                | 0.170                | 0.170                | 0.262                  | 0.262                | 0.262                |
| Observations                                   | 2789                 | 2789                 | 2789                 | 2789                   | 2789                 | 2789                 |



**Table 7.2: The Two-Stage Least Squares regression results for the impact of gender-based corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. In Columns I, II, and III, we present the estimation results of female specific corruption impact on *Market to Book Ratio* (i.e. Market value of firm). In Column I, II, III, IV, V, and VI the variables *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. In Columns I, II and III, we report the estimation results of female specific corruption impact on *Market to Book Ratio* (i.e. market-based performance of the firm). In Columns VI, V and VII, we report the estimation results of female specific corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for the validity of used instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap rk Wald F statistic are tests of relevance and weakness of instruments. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                          | Dependent Variables  |                      |                     |                        |                      |                      |
|--|----------------------|----------------------|---------------------|------------------------|----------------------|----------------------|
|  | Market to Book Ratio |                      |                     | Return on Assets (ROA) |                      |                      |
|  | (1)                  | (2)                  | (3)                 | (4)                    | (5)                  | (6)                  |
| Percentage of Corrupt Female Board Members     | -4.637**<br>(0.027)  |                      |                     | -3.513***<br>(0.010)   |                      |                      |
| Percentage of Corrupt Female Executives        |                      | -9.794*<br>(0.086)   |                     |                        | -9.659*<br>(0.053)   |                      |
| Percentage of Corrupt Female Senior Executives |                      |                      | -15.067<br>(0.269)  |                        |                      | -14.859<br>(0.246)   |
| Average Board Age                              | -0.002<br>(0.184)    |                      |                     | 0.001<br>(0.420)       |                      |                      |
| Average Executives Age                         |                      | -0.005**<br>(0.039)  | -0.008<br>(0.146)   |                        | -0.002<br>(0.402)    | -0.004<br>(0.394)    |
| Board Size                                     | -0.002<br>(0.409)    | -0.001<br>(0.740)    | 0.002<br>(0.824)    | -0.005**<br>(0.027)    | -0.004<br>(0.374)    | -0.000<br>(0.963)    |
| Board Gender Diversity                         | 0.592**<br>(0.043)   | 0.296<br>(0.134)     | 0.469<br>(0.286)    | 0.588***<br>(0.002)    | 0.428**<br>(0.014)   | 0.598<br>(0.147)     |
| Firm Age                                       | -0.008<br>(0.344)    | -0.008<br>(0.517)    | 0.013<br>(0.633)    | 0.024***<br>(0.000)    | 0.024**<br>(0.027)   | 0.045<br>(0.103)     |
| Firm Size                                      | 0.088***<br>(0.000)  | 0.083***<br>(0.000)  | 0.095***<br>(0.003) | 0.064***<br>(0.000)    | 0.066***<br>(0.000)  | 0.078***<br>(0.007)  |
| Financial Leverage                             | -0.316***<br>(0.000) | -0.296***<br>(0.001) | -0.140<br>(0.486)   | -0.320***<br>(0.000)   | -0.302***<br>(0.000) | -0.148<br>(0.442)    |
| Assets Growth                                  | 0.009<br>(0.607)     | 0.011<br>(0.568)     | 0.015<br>(0.573)    | 0.021<br>(0.164)       | 0.016<br>(0.392)     | 0.020<br>(0.438)     |
| Tangibility                                    | 0.098**<br>(0.028)   | 0.054<br>(0.412)     | 0.021<br>(0.868)    | 0.062**<br>(0.044)     | 0.015<br>(0.800)     | -0.017<br>(0.891)    |
| Ownership                                      | -0.007<br>(0.860)    | -0.057<br>(0.340)    | -0.121<br>(0.384)   | 0.024<br>(0.316)       | -0.026<br>(0.628)    | -0.089<br>(0.504)    |
| R&D Intensity                                  | -0.104<br>(0.679)    | -0.109<br>(0.706)    | -0.266<br>(0.470)   | -0.865***<br>(0.000)   | -0.875***<br>(0.000) | -1.030***<br>(0.001) |
| Industry Fixed Effects                         | Yes                  | Yes                  | Yes                 | Yes                    | Yes                  | Yes                  |
| Country Fixed Effects                          | Yes                  | Yes                  | Yes                 | Yes                    | Yes                  | Yes                  |

| Hansen J Statistic<br>(p-value)        | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Kleibergen-Paap<br>rk LM statistic     | 9.994<br>(0.000)      | 4.627<br>(0.031)      | 1.442<br>(0.229)      | 9.994<br>(0.000)      | 4.627<br>(0.031)      | 1.442<br>(0.229)      |
| Kleibergen-Paap<br>rk Wald F statistic | 10.052                | 4.605                 | 1.413                 | 10.052                | 4.605                 | 1.413                 |
| Observations                           | 2789                  | 2789                  | 2789                  | 2789                  | 2789                  | 2789                  |

**Table 8: Robustness test: The Two-Stage Least Squares regression results for the impact of firm-specific corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Equity MTB*, a ratio of market value of equity to book value of equity; (2) *Return on Investment*, a ratio of earnings before interest and tax to total assets. The independent variables (i.e. main variable of interest) are: (1) *Firm Corrupt Dummy*, a dummy variable that equals to one if firm is alleged for the involvement in any kind of sanction, enforcement, PEP or adverse media list and zero, otherwise; (2) *Percentage of Corrupt Board Members*, a percentage of corrupt board members with respect to total board members in the firms; (3) *Percentage of Corrupt Executives*, a percentage of corrupt executives with respect to total executives in the firms; and (4) *Percentage of Corrupt Senior Executives*, a percentage of corrupt senior executives with respect to total executives in the firms. In Column I, II, III, IV, V, VI, VII and VIII, the variables *Firm Corrupt Dummy*, *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, and *Percentage of Corrupt Senior Executives* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. Furthermore, Columns I, II, III and IV show the impact of corruption on *Equity MTB* (i.e. Market Value of firm equity). In Columns V, VI, VII and VIII, we report the estimation results of corruption impact on *Return on Investment* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for the validity of used instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives); and Kleibergen-Paap rk LM statistic and Kleibergen-Paap rk Wald F statistic are test of relevance and weakness of instruments and statistically satisfy the conditions. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                   | Dependent Variables  |                      |                      |                      |                            |                      |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|----------------------------|----------------------|----------------------|----------------------|
|   | Equity MTB           |                      |                      |                      | Return on Investment (ROI) |                      |                      |                      |
|   | (1)                  | (2)                  | (3)                  | (4)                  | (5)                        | (6)                  | (7)                  | (8)                  |
| Firm Corrupt Dummy                      | -1.059<br>(0.224)    |                      |                      |                      | -0.669***<br>(0.007)       |                      |                      |                      |
| Percentage of Corrupt Board Members     |                      | -2.013**<br>(0.018)  |                      |                      |                            | -0.454***<br>(0.002) |                      |                      |
| Percentage of Corrupt Executives        |                      |                      | -1.365<br>(0.219)    |                      |                            |                      | -0.830***<br>(0.003) |                      |
| Percentage of Corrupt Senior Executives |                      |                      |                      | -1.202<br>(0.222)    |                            |                      |                      | -0.731***<br>(0.003) |
| Average Board Age                       | -0.005<br>(0.256)    | -0.000<br>(0.922)    |                      |                      | 0.000<br>(0.666)           | 0.001<br>(0.185)     |                      |                      |
| Average Executives Age                  |                      |                      | -0.004<br>(0.254)    | -0.004<br>(0.266)    |                            |                      | 0.000<br>(0.780)     | 0.000<br>(0.746)     |
| Board Size                              | 0.006<br>(0.562)     | -0.002<br>(0.701)    | -0.001<br>(0.914)    | -0.002<br>(0.765)    | 0.000<br>(0.902)           | -0.005***<br>(0.000) | -0.004***<br>(0.003) | -0.005***<br>(0.001) |
| Board Gender Diversity                  | -0.075<br>(0.646)    | -0.081<br>(0.614)    | -0.070<br>(0.678)    | -0.053<br>(0.744)    | 0.071*<br>(0.073)          | 0.100***<br>(0.000)  | 0.068**<br>(0.050)   | 0.078**<br>(0.022)   |
| Firm Age                                | -0.016<br>(0.448)    | -0.020<br>(0.332)    | -0.021<br>(0.268)    | -0.025<br>(0.185)    | 0.028***<br>(0.000)        | 0.023***<br>(0.000)  | 0.024***<br>(0.000)  | 0.022***<br>(0.000)  |
| Firm Size                               | 0.141***<br>(0.001)  | 0.152***<br>(0.000)  | 0.114***<br>(0.000)  | 0.114***<br>(0.000)  | 0.064***<br>(0.000)        | 0.048***<br>(0.000)  | 0.047***<br>(0.000)  | 0.048***<br>(0.000)  |
| Financial Leverage                      | -0.795***<br>(0.000) | -0.798***<br>(0.000) | -0.753***<br>(0.000) | -0.727***<br>(0.000) | -0.227***<br>(0.000)       | -0.208***<br>(0.000) | -0.198***<br>(0.000) | -0.183***<br>(0.000) |
| Assets Growth                           | 0.061<br>(0.100)     | 0.048<br>(0.185)     | 0.069**<br>(0.046)   | 0.072**<br>(0.037)   | 0.009<br>(0.483)           | 0.016<br>(0.169)     | 0.013<br>(0.257)     | 0.015<br>(0.197)     |
| Tangibility                             | 0.092<br>(0.364)     | 0.099<br>(0.348)     | 0.094<br>(0.348)     | 0.100<br>(0.326)     | 0.028<br>(0.321)           | 0.033<br>(0.106)     | 0.027<br>(0.229)     | 0.031<br>(0.187)     |
| Ownership                               | -0.073<br>(0.407)    | -0.101<br>(0.265)    | -0.058<br>(0.507)    | -0.069<br>(0.430)    | 0.014<br>(0.532)           | 0.014<br>(0.377)     | 0.023<br>(0.215)     | 0.016<br>(0.441)     |

|                                     |                   |                    |                    |                    |                      |                      |                      |                      |
|-------------------------------------|-------------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|
| R&D Intensity                       | -0.478<br>(0.392) | -0.538<br>(0.312)  | -0.674<br>(0.206)  | -0.739<br>(0.165)  | -0.795***<br>(0.000) | -0.895***<br>(0.000) | -0.909***<br>(0.000) | -0.949***<br>(0.000) |
| Industry Fixed Effects              | Yes               | Yes                | Yes                | Yes                | Yes                  | Yes                  | Yes                  | Yes                  |
| Country Fixed Effects               | Yes               | Yes                | Yes                | Yes                | Yes                  | Yes                  | Yes                  | Yes                  |
| Hansen J Statistic (p-value)        | 8.330<br>(0.004)  | Exactly Identified | Exactly Identified | Exactly Identified | 8.330<br>(0.004)     | Exactly Identified   | Exactly Identified   | Exactly Identified   |
| Kleibergen-Paap rk LM statistic     | 11.534<br>(0.003) | 30.953<br>(0.000)  | 19.683<br>(0.000)  | 19.592<br>(0.000)  | 11.534<br>(0.003)    | 30.953<br>(0.000)    | 19.683<br>(0.000)    | 19.592<br>(0.000)    |
| Kleibergen-Paap rk Wald F statistic | 5.649             | 32.967             | 20.958             | 20.527             | 5.649                | 32.967               | 20.958               | 20.527               |
| Observations                        | 2789              | 2789               | 2789               | 2789               | 2789                 | 2789                 | 2789                 | 2789                 |

**Table 9.1: Robustness test: The Two-Stage Least Squares regression results for the impact of gender-based corruption on different measures of financial performance (firm value and accounting performance)**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Equity MTB*, a ratio of market value of equity to book value of equity; (2) *Return on Investment*, a ratio of earnings before interest and tax to total assets. In Columns I, II, and III, we present the estimation results of female specific corruption impact on *Equity MTB* (i.e. Market Value of firm equity). In Column I, II, III, IV, V, and VI the variables *Percentage of Corrupt Female Board Members*, *Percentage of Corrupt Female Executives*, and *Percentage of Corrupt Female Senior Executives* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. In Columns VI, V and VII, we report the estimation results of female specific corruption impact on *Return on Investment* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for joint validity of used instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives), however in our model, we used one instrument for one endogenous variable so the model is exactly identified; Kleibergen-Paap rk LM statistic and Kleibergen-Paap rk Wald F statistic are test of relevance and weakness of instruments and statistically satisfy the conditions. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                          | Dependent Variables  |                      |                     |                            |                      |                      |
|--|----------------------|----------------------|---------------------|----------------------------|----------------------|----------------------|
|  | Equity MTB           |                      |                     | Return on Investment (ROI) |                      |                      |
|  | (1)                  | (2)                  | (3)                 | (4)                        | (5)                  | (6)                  |
| Percentage of Corrupt Female Board Members     | -11.525**<br>(0.040) |                      |                     | -2.600**<br>(0.015)        |                      |                      |
| Percentage of Corrupt Female Executives        |                      | -13.234<br>(0.255)   |                     |                            | -8.049*<br>(0.053)   |                      |
| Percentage of Corrupt Female Senior Executives |                      |                      | -20.360<br>(0.370)  |                            |                      | -12.383<br>(0.246)   |
| Average Board Age                              | -0.003<br>(0.576)    |                      |                     | 0.000<br>(0.519)           |                      |                      |
| Average Executives Age                         |                      | -0.007<br>(0.161)    | -0.010<br>(0.238)   |                            | -0.001<br>(0.368)    | -0.003<br>(0.378)    |
| Board Size                                     | 0.006<br>(0.458)     | 0.003<br>(0.715)     | 0.008<br>(0.592)    | -0.003**<br>(0.043)        | -0.002<br>(0.630)    | 0.001<br>(0.863)     |
| Board Gender Diversity                         | 1.520*<br>(0.051)    | 0.429<br>(0.282)     | 0.663<br>(0.370)    | 0.461***<br>(0.002)        | 0.371**<br>(0.010)   | 0.513<br>(0.135)     |
| Firm Age                                       | -0.026<br>(0.283)    | -0.025<br>(0.263)    | 0.003<br>(0.940)    | 0.022***<br>(0.000)        | 0.022**<br>(0.016)   | 0.039*<br>(0.084)    |
| Firm Size                                      | 0.158***<br>(0.000)  | 0.124***<br>(0.000)  | 0.140***<br>(0.010) | 0.050***<br>(0.000)        | 0.054***<br>(0.000)  | 0.063***<br>(0.008)  |
| Financial Leverage                             | -0.793***<br>(0.000) | -0.743***<br>(0.001) | -0.533<br>(0.134)   | -0.206***<br>(0.000)       | -0.192***<br>(0.000) | -0.064<br>(0.686)    |
| Assets Growth                                  | 0.021<br>(0.641)     | 0.054<br>(0.207)     | 0.058<br>(0.221)    | 0.010<br>(0.460)           | 0.004<br>(0.814)     | 0.007<br>(0.758)     |
| Tangibility                                    | 0.097<br>(0.439)     | 0.038<br>(0.771)     | -0.006<br>(0.975)   | 0.032<br>(0.199)           | -0.007<br>(0.891)    | -0.034<br>(0.744)    |
| Ownership                                      | -0.052<br>(0.613)    | -0.121<br>(0.296)    | -0.207<br>(0.353)   | 0.026<br>(0.184)           | -0.016<br>(0.723)    | -0.068<br>(0.538)    |
| R&D Intensity                                  | -0.831<br>(0.138)    | -0.781<br>(0.169)    | -0.993<br>(0.133)   | -0.961***<br>(0.000)       | -0.974***<br>(0.000) | -1.103***<br>(0.000) |
| Industry Fixed Effects                         | Yes                  | Yes                  | Yes                 | Yes                        | Yes                  | Yes                  |
| Country Fixed Effects                          | Yes                  | Yes                  | Yes                 | Yes                        | Yes                  | Yes                  |
| Hansen J Statistic (p-value)                   | Exactly Identified   | Exactly Identified   | Exactly Identified  | Exactly Identified         | Exactly Identified   | Exactly Identified   |
| Kleibergen-Paap rk LM statistic                | 9.994<br>(0.002)     | 4.627<br>(0.031)     | 1.442<br>(0.229)    | 9.994<br>(0.002)           | 4.627<br>(0.031)     | 1.442<br>(0.229)     |
| Kleibergen-Paap rk Wald F statistic            | 10.052               | 4.605                | 1.413               | 10.052                     | 4.605                | 1.413                |
| Observations                                   | 2789                 | 2789                 | 2789                | 2789                       | 2789                 | 2789                 |

**Table 9.2: Robustness test: The Two-Stage Least Squares regression results for the impact of gender-based corruption (in terms of male) on different measures of financial performance (firm value and accounting performance)**

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variables are: (1) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets; (2) *Return on Assets*, a ratio of net income to total assets. In Columns I, II, and III, we present the estimation results of female specific corruption impact on *Market to Book Ratio* (i.e. Market value of firm). In Column I, II, III, IV, V, and VI the variables *Percentage of Corrupt Male Board Members*, *Percentage of Corrupt Male Executives*, and *Percentage of Corrupt Male Senior Executives* are the fitted values of different indicators of firm-level corruption from first stage regression of 2SLS estimation method. In Columns VI, V and VII, we report the estimation results of Male specific corruption impact on *Return on Assets* (i.e. Accounting performance of the firm). Table 2 provides the definitions of all the variables. At the end, the following statistics are being reported: Hansen J Statistic is the test of over-identification condition for the joint validity of used instruments (i.e. Industry Mean of Corrupt Board, and Industry Mean of Corrupt Executives), but in this case, the model is exactly identified; and Kleibergen-Paap rk LM statistic and Kleibergen-Paap rk Wald F statistic are test of relevance and weakness of instruments and statistically satisfy the conditions. Robust p-value, based on robust standard errors, are reported in parentheses. \*\*\*: denotes significance at the 1% level; \*\*: denotes significance at the 5% level; \*: denotes significance at the 10% level.

| Explanatory Variables                        | Dependent Variables  |                      |                      |                        |                      |                      |
|--|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
|  | Market to Book Ratio |                      |                      | Return on Assets (ROA) |                      |                      |
|  | (1)                  | (2)                  | (3)                  | (4)                    | (5)                  | (6)                  |
| Percentage of Corrupt Male Board Members     | -0.981***<br>(0.009) |                      |                      | -0.743***<br>(0.000)   |                      |                      |
| Percentage of Corrupt Male Executives        |                      | -1.127**<br>(0.013)  |                      |                        | -1.111***<br>(0.002) |                      |
| Percentage of Corrupt Male Senior Executives |                      |                      | -0.945**<br>(0.014)  |                        |                      | -0.932***<br>(0.002) |
| Average Board Age                            | -0.001<br>(0.503)    |                      |                      | 0.002*<br>(0.098)      |                      |                      |
| Average Executives Age                       |                      | -0.003*<br>(0.060)   | -0.003*<br>(0.073)   |                        | 0.001<br>(0.496)     | 0.001<br>(0.437)     |
| Board Size                                   | -0.007***<br>(0.000) | -0.005**<br>(0.019)  | -0.006***<br>(0.006) | -0.009***<br>(0.000)   | -0.007***<br>(0.000) | -0.008***<br>(0.000) |
| Board Gender Diversity                       | -0.188**<br>(0.017)  | -0.115*<br>(0.074)   | -0.094<br>(0.118)    | -0.004<br>(0.937)      | 0.022<br>(0.641)     | 0.043<br>(0.316)     |
| Firm Age                                     | -0.006<br>(0.447)    | -0.004<br>(0.544)    | -0.009<br>(0.226)    | 0.026***<br>(0.000)    | 0.027***<br>(0.000)  | 0.022***<br>(0.000)  |
| Firm Size                                    | 0.084***<br>(0.000)  | 0.075***<br>(0.000)  | 0.075***<br>(0.000)  | 0.061***<br>(0.000)    | 0.058***<br>(0.000)  | 0.058***<br>(0.000)  |
| Financial Leverage                           | -0.319***<br>(0.000) | -0.304***<br>(0.000) | -0.293***<br>(0.000) | -0.322***<br>(0.000)   | -0.310***<br>(0.000) | -0.299***<br>(0.000) |
| Assets Growth                                | 0.022<br>(0.103)     | 0.024*<br>(0.074)    | 0.026*<br>(0.057)    | 0.031**<br>(0.017)     | 0.029**<br>(0.033)   | 0.030**<br>(0.024)   |
| Tangibility                                  | 0.100***<br>(0.007)  | 0.101***<br>(0.006)  | 0.105***<br>(0.005)  | 0.063***<br>(0.009)    | 0.061**<br>(0.020)   | 0.066**<br>(0.015)   |
| Ownership                                    | -0.031<br>(0.370)    | -0.005<br>(0.886)    | -0.013<br>(0.725)    | 0.006<br>(0.776)       | 0.026<br>(0.230)     | 0.018<br>(0.440)     |
| R&D Intensity                                | 0.039<br>(0.868)     | -0.021<br>(0.932)    | -0.066<br>(0.786)    | -0.757***<br>(0.000)   | -0.788***<br>(0.000) | -0.833***<br>(0.000) |
| Industry Fixed Effects                       | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  |
| Country Fixed Effects                        | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  |

|  |                       |                       |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hansen J Statistic<br>(p-value)        | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified | Exactly<br>Identified |
| Kleibergen-Paap rk<br>LM statistic     | 28.970<br>(0.000)     | 19.513<br>(0.000)     | 19.597<br>(0.000)     | 28.970<br>(0.000)     | 19.513<br>(0.000)     | 19.597<br>(0.000)     |
| Kleibergen-Paap rk<br>Wald F statistic | 30.663                | 20.785                | 20.597                | 30.663                | 20.785                | 20.597                |
| Observations                           | 2789                  | 2789                  | 2789                  | 2789                  | 2789                  | 2789                  |

## Appendix-1

### Corruption definition and source of data

World Compliance™ Data: Bureau Van Dijk provides information concerning the involvement of the firm, considered as whole and a separate entity, or each single manager or member of the board in many kinds of illegal, unethical and untruthful behavior which are based on the abuse his/her authority and power. Data are provided by LexisNexis World Compliance combining cutting-edge technology and unique data, built on the LexisNexis 40-year reputation as a trusted custodian of essential information. This is the most comprehensive and current database of sanctions, enforcements, PEP and negative news available all over the world. World Compliance collects information concerning people and entities to allow to assess, predict and manager the risk associated with the quality of whom a firm intends to start to conduct a business. It employs a rigorous investigative process to provide robust databases of high-risk individuals and entities commercially available. It is noteworthy for a firm to know in advance whether the managers or the company it wants to start to make business is involved in some illegal or unethical behaviors and which are these behaviors, supporting more confident decisions, improving due diligence activities, increasing transaction screening efficiency and, in general, enhancing operational efficiency.

This information is typically used by: 6 of the world's top 10 banks; 100% of the top 50 U.S. banks; 80% of Fortune 500 companies; Over 8,000 discreet customers and more than 100,000 online users; Screening over 33 billion names against global watch lists per year; Serving more than 500 million real-time transactions per year; for the involvement in any kind of sanction, enforcement, PEP or adverse media list.

The database contents data from different segments, as mainly sorted in: 1) "sanctions and enforcements", that are aggregated information from the most important sanction lists (OFAC, EU, UN, BOE, FBI BIS, etc.) worldwide, grouping them into one category. In addition, information received from enforcement lists and court filings worldwide, such as the FDA, U.S. HHS, UK FSA, SEC and more (about 500 enforcement agencies around the world). 2) "Politically Exposed Persons (PEPs)": includes profiles of the largest database of Politically Exposed Persons as well as those of their family members or close associates. 3) "Adverse Media": An extensive proprietary database of profiles that have been linked to illicit activities from over 35,000 news sources worldwide. For example, cheating, bribery, tax evasion, money laundering, fraud, insider trading, terrorism, securities fraud, bank fraud, kidnapping, piracy, drug trafficking, smuggling, financial crimes, conspiracy, piracy, environmental and other types of crimes, forgery, and misappropriation among other corrupt practices.

For further information:

<http://www.lexisnexis.com/risk/products/financial/worldcompliance-data.aspx>

<http://www.lexisnexis.com/risk/intl/en/resources/brochures/WorldCompliance-Data.pdf>



## Conclusion of thesis

The primary goal of this PhD dissertation is solely to contribute the rising literature on gender-diversity, debt-maturity and corruption, investigating the role of national cultural factors on the extent of relationship between gender-diversity and financial decisions, along with financial performance of the companies. In addition, it is aimed to spread some light on the significance of gender dimension in exploring the corruption consequences on the economic value of the organizations. The composition of three empirical chapters of the thesis are devoted not only to improve the understanding on the underlying academic research areas of interest, but also present important implications for policy makers and strategists on issue of gender-balancing and global disease so called- “cancer of corruption”.

The objective of the first chapter of thesis is to investigate the role of gender diversity in determining the debt maturity choices of the firm, implementing the role of moderators on the degree of relationship. The innovative work of this chapter allows to fill gap in debt maturity structure studies as so far, the empirical studies on debt maturity have not given attention to the effect of executives’ traits in shaping this choice. Based on a panel data of listed and unlisted European companies, the results report that the gender of executive could play a significant role and suggests that the presence of female executives increases the level of short-term debt financing. Moreover, this relationship between executives’ gender and debt maturity choice is influenced by the cultural dimension of the country in which the company is situated. We investigate the effects of gender heterogeneity moderated by cultural differences among countries related to masculinity/femininity traits in the societies. We find that female executives seem to prefer a higher level of short-term debt, especially in countries with a high masculinity score according to Hofstede’s classification, where competitiveness and material rewards for success are very relevant. Additional tests inform that, controlling for self-selection, female executives tend to act differently, at least in a masculine environment, from their male counterparts.

The underlying reasoning for the premised results is that in line with behavioural theory, females are less overconfident and place greater emphasis on the anticipated losses than expected potential benefits and consequently, showing themselves to be reluctant to involve in long-term debt contracts. We theorize that the opportunity to switch to different financial contracts in presence of undesirable contingencies, without any obligation to continue in long-term contracts, seems to be particularly preferred by female executives. Since this low level of

confidence is strongly determined by sociocultural factors operating at the country level, the positive effect of gender on debt maturity is shown to be shaped strongly by the country culture. Female who climb the corporate ladder are different from their male peers if the cultural setting favours these gender role differences. This degree of given effect is determined by the national cultural context in which the company is located because the national culture is considered as one of the essential dimensions that distinguish firms' behaviour from country to country. The empirical evidence is consistent with view that females being less overconfident and more conservative than males (Rosener, 1995) given that female executives seem to prefer a more flexible financial structure, which leads to greater comfort of managing uncertain circumstances, but mostly if the cultural context tends to force the gender role differences.

The outcomes of this study suggest that corporate finance should not focus only on firm characteristics, ignoring important factors such as gender diversity on the management team, to explain firm behaviour, where the behavioural finance theories strongly support the argument that the degree of overconfidence of managers can significantly affect the financing decision choices of the companies. Therefore, this empirical study advances the literature on the debt maturity structure, suggesting a new driver of firm's debt maturity choices. It underlines and then fill the gap between the classical corporate finance literature and the behavioural finance literature. This study also provides some future guidelines by suggesting that it will be worthy to disentangle the reason for this minor overconfidence and determine whether it is just based on a lack of confidence or generated by a lack of financial knowledge. In general, it would be noteworthy in future research to consider other characteristics of managers, such as age, education, experience, and so on, that can play a role in corporate finance decisions and particularly, the debt maturity choice of the firms.

In the second chapter of thesis, we explore the role of gender diversity by showing how gender-diversity on management and board affect the financial performance of the companies, implementing the moderating role of national cultural factor. The advanced work of this chapter allows to fill gap in research studies on diversity and firm performance as so far, the empirical studies have not given attention to the moderating factors that could shape the effects of gender diversity on corporate performance. Using a cross-sectional data of listed and unlisted European companies, the results suggest that the existence of females on management and board team have a relevant role in shaping firm performance. The cultural differences among countries moderate the extent of relationship between gender-diversity and firm profitability, stemming at the core of past controversial results. We find that firms managed or controlled by females seem to have a negative impact on firm performance in countries with a

high masculinity score, according to Hofstede's cultural differences classification. Further, as supplementary analysis of main results indicates that the female CEO duality shows a strong positive influence on firm performance whereas CEO duality affects the firm performance negatively. We suggest that female CEO-chair is good steward of firm's resources and this finding is consistent with the view that female serving both roles of CEO and chairperson of board can work more effectively by reducing the managerial opportunism and CEO entrenchment due to their higher level of ethical behaviour, higher morality and greater universal concern, which may not let them to enjoy their power and positions at the cost of owners or shareholders.

The outcomes of the study meet the theoretical expectations, proposing that the gender diversity at management and board teams tend to affect firm performance positively. The underlying reasoning are consistent with agency perspective and resource-based view of the firm and it suggests that females who seem to be tough monitors, more ethical and altruistic in comparison to their male counterparts, are likely to inspire as well as force their counterparts on management and board groups to fulfill their responsibilities more effectively, and help to reduce the problem of opportunism and agency conflicts. It seems that females' ethical and altruistic behavior are at the core to inspire and force other team members to work together as a team for the achieving the mutual objective of firm and improve the performance. The positive impression of gender-diversity on firm performance is also reinforced by the alternative theory i.e. resource-based view which advocates that gender-diversity can be an effective source of sustained competitive advantage for the firm as women bring diversity in knowledge, ideas, information, and experiences to the traditional homogenous groups of men. Consistent with the resource based view of Barney (1991), the heterogeneity in resources is at the core of sustained competitive advantage which adds value to the firm.

The gender-differences are strongly determined by sociocultural factors of any nation. The gender differences are more evident if the national culture marks such differences. This effect is closely affected by the social culture of nation, in which the firm is operating as social cultural differences determine firm's behavior from one nation to another. It seems that females being less overconfident, and more conservative than males, given that they might be less able to utilize their skills, knowledge as well as to protect their own ideas, and opinions and in end, plays a role to increase the degree of executive opportunism and agency conflicts, only if the presence of gender-role differences supported by nation. More generally, our outcomes highlight the importance of gender-diversity on management and board teams in the organization. The overall findings of this chapter support the women quota legislation or

directives and other strategies to empower females and have a proper gender-balancing to improve overall governance and performance of the companies. In terms of managerial implications, our findings highlight, also in this case, the prominent role of female representation in management and board of the corporation, reinforcing the women quota legislation and other relevant strategies to empower females and have a proper gender-balancing to improve overall governance and performance of the companies.

The final chapter of the thesis is aimed to verify and reveal the firm-level consequences of corruption. The existing empirical study are basically use measures of corruption at country level, this is the first analysis, out of some studies related to survey, based on a cross sectional dataset measuring corruption at businesses level. The aim of this study is to highlight the impact of corruption, rooted inside the firm on corporate performance. Empirically, we investigate what happens to firm performance considering when: first, the firm as whole is involved in corrupted activities, second, having members of the board of director or members of the management, also at top level, to be involved in such any illegal matters, finally, role of gender dimension related in the way corruption affect firm performance. The empirical results suggest that firm corruption works like a strong constraint to its short-term as well as long-run performance. The involvement of the firm in corruption and any sort of illicit practices decreases the accounting and market performance, being also harmful to firm's growth opportunities. We also find evidence that corrupt or dishonest behavior of females are even more harmful for corporate performance.

The underlying reasoning of these effects is that corrupt behavior of firm increases flow of the unofficial activities, in this manner decreasing the level of efficiency, transparency and then increases the miss-allocation of its capital and investment. Such type dishonest or untruthful environment of firm will prone to advance its operational and reputation costs by paying a lot of capital into the payments of illegal or unethical matters in forms of penalties as well as damaging the firm image in the market place, respectively. We assume that the secretive nature of corrupt or dishonest behaviour terminates the valuable information flow, communication, and coordination of the firm. Consequently, internal corrupt environment of firm nurtures the self-interest seeking of its actors (i.e. board members and executives), the problem of insufficient information, opportunistic behaviour, and poor governance thereby raising the agency conflicts among stakeholders of firm and reducing the performance.

We find that the internal individual units' corruption (board and management group members) plays a prominent role to understand the effects of firm-level corruption on the financial performance of the firm. We argue that the corrupt board members are more likely to

behave opportunistically. Such board members do not perform their job well as they seem willingly to agree with the management decisions for sake of their social contacts, self-interest and financial ties with management or third parties. Such discretionary behavior of board members causes the poor governance, higher level of managerial opportunism thereby increases agency conflicts between managers and shareholders and demonstrate adverse effects on financial performance of the firm. We find that firm-level corruption influence on firm performance is statistically significant which is consistent with board-level and management-level corruption. The principal reasoning for these adverse effects of executive corruption on firm performance is in line with agent-cost framework where executives are considered to behave opportunistically and prefer to maximize their personal wealth. We assume that every opportunistic executive is more likely to involve in illegal, dishonest and criminal acts as they are attracted towards the incentives of corruption to maximize their personal benefits. In organizational settings, executives have information advantage on company which they operate, corrupt executives will exploit their skills, knowledge and power against the firm as well as may hide the essential information to cover-up their unethical, criminal, dishonest or illegal acts and follow those short-term investments which increase their inducements and personal wealth. Corruption at management-level develops the managerial opportunism, which carries to the agency conflicts, and information asymmetry and increases the costs (lower productivity by misallocation of company resources and human capital, lower-level of investment, lack of trust, poor quality governance, and environmental issues or absence of corporate social responsibility of firm). We conclude that the level of corrupt executives will lower the financial performance of the firm.

In addition to main analysis, our empirical analysis improves the insights on the role of corporate corruption investigating one specific dimension of corruption i.e. the extent of political exposure of individual units (executives / board members), and its impact on financial performance. We argue the role of PEPs in management or board of director, who hold influential positions and keep power to formulate and manipulate the important decision policies can be very important for firm value. In line with agency theory and real-life examples (e.g. Enron case), we find that firms with PEP executives / board members tend to show poor financial performance. We suggest that firms managed or governed by PEP executives/ board members may be more likely to have the problem of opportunism, and agency conflicts. PEP connections may undermine the quality of the management and board as these executives/ board members may not be fully dedicated to delivering the services to the firm as well as may be more self-interested in extracting heavy rents from company with respect to their positions

in the government and legal system and thereby increase the costs of firm. Of course, it can also be possible that PEP alliances with firm apparently brings profits (benefits) to the firm, but it also declines the demand of performance-based incentives and rewards to favouritism. Hence, this suggests the intensity of PEP executives or board members can be assumed to create problems of opportunism, agency conflicts and poor-quality management and governance and in turn, poor the firm performance.

Finally, we demonstrate that gender-specific corruption is a significant driver of the performance of the firm. The evidence implies that the corrupt females are more harmful for the financial performance of the firm. The underlying reasoning for these strong negative effect is that the higher-level of risk-averseness in females may make them more fearful, nervous, emotional and less-confident and especially, in the environment of high risk of punishment, fines and fire out. We theorize that the corrupt female board members (or executives) may not be as smart (and confident) as their male counterparts to cover-up their mistakes and cannot handle the risk of involvement in corrupt transactions and tasks. In such circumstances when executives or board members are corrupted and female, the incapability of females to manage the highly risky, illegal and unethical transactions amplifies the negative effect of corruption and it direct the firm even in a worse condition. These findings are consistent with the explanation of Frank et al. (2011), who argue that females typically are found strongly react to corrupt transactions and the degree of corrupt transaction failure increases in the presence of female in corrupt environment. We demonstrate that corruption is simply not acceptable in any form and at any level as the outcomes of this research work expose that corruption it is detrimental in every situation. These findings support the dominant view of corruption that it is force that act as “sands the wheel of the commerce”.