

The effect of corruption in management and board on firm performance in Europe

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Abstract

Corruption, fraud and illicit activities have become worldwide the major impediment on economic, political and social development. While the existing 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 the members of the board of director or members of the management, also at top level, are involved in such illegal matters. The empirical findings suggest that firm corruption acts as a vibrant constraint to its short-term as well as long-run performance, being also harmful to firm's growth opportunities. Finally, we present evidence of the negative effect of corruption in terms of political connections and that corrupt behavior of females is even more severe for firm performance.

Keywords: Corporate corruption, fraud, unethical behavior, corrupted managers, corrupted members of the board, firm performance.

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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.

Recently, according to the global survey report¹ 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 firm². Apart from severe corporate scandals, many other corporations, their

¹ 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.

² 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

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.

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

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>

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.

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 study 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 study 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 paper 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.

2. Literature Review and Hypothesis Development

2.1 Corruption definitions

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 work³; 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)⁴; 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)⁵ 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.

We define corruption in line with LexisNexis World Compliance™ Data as “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 derived by his/her 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 behaviours such as: Money laundering, Bribery, Forgery, Financial Crimes, Financial and Securities Fraud, Environmental Crime, Cheating, Conspiracy, and Smuggling. It is important to notice that this theoretical definition is the one used empirically, getting directly the data from LexisNexis.

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

³ To see more: go on the link <http://businessethicscases.blogspot.it/2014/02/ralph-lauren-16-million-bribery-case.html>

⁴ See on: <http://www.investopedia.com/financial-edge/0512/the-biggest-bribe-cases-in-business-history.aspx>

⁵ To see more: go on the link <http://www.nytimes.com/2008/12/21/business/worldbusiness/21siemens.html>

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. Between these actors there are typically problems of “opportunism⁶” where individuals are self-interested and work to maximize their private wealth. 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. 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, having the power 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.

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 news⁷ on Nov. 22, 2016, two directors of Costco pharmacy have been charged with professional misbehave 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

⁶ Opportunism is a subtle and pervasive condition of human nature with which study of the economic organization must be actively concerned.

⁷ To see more: link <https://www.thestar.com/news/canada/2016/11/22/costco-directors-charged-with-misconduct.html>

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.

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 dieselpgate) 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_x)) 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_x emission limits of cars to meet the U.S. standards of vehicles' NO_x 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 Bloomberg⁸ 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 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.

According to this example, and considering that a similar software was used also in other car's companies⁹, it results that the corrupted behaviours of Volkswagen became widespread in all the industry. The common pattern of corrupt behaviour of companies in automotive industry, suggests the existence of an Industry Specific Corrupt Behavior. Thus, a corrupted behaviour that is supposed to be typically industry-specific, can suggest, as explained later in the paper, to used industry mean corruption as instrumental variable in the empirical part of the paper.

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

⁸ 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>

⁹ <http://www.dailymail.co.uk/news/article-3259067/It-s-not-just-VW-Official-tester-claims-four-diesel-car-giants-break-toxic-emissions-limit.html>

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 paper, 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. Ayaydın & 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. 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.

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 follows the first hypothesis of the paper.

Hypothesis 1: Corruption on management group (or at board level) 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 2: PEP on management group (or at board level) 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 3: Corrupt females in management (or among board members) have strong negative impact on corporate performance.

3. Research Design

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 and management data are accumulated from Orbis database¹⁰ 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 development¹¹.

¹⁰ 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.

¹¹ 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).

Table 1 – Sample features

Country	Observations	Percentage	Year	No	Country	Observations	Percentag
Austria	4	0.14	2015	18	Luxembourg	14	0.5
Belgium	47	1.69	2015	19	Malta	4	0.14
Bulgaria	70	2.51	2015	20	Netherlands	28	1
Croatia	4	0.14	2015	21	Norway	89	3.19
Cyprus	21	0.75	2015	22	Poland	53	1.9
Czech Republic	4	0.14	2015	23	Portugal	25	0.9
Denmark	62	2.22	2015	24	Romania	135	4.84
Estonia	7	0.25	2015	25	Russian Federation	51	1.83
Finland	103	3.69	2015	26	Serbia	8	0.29
France	410	14.7	2015	27	Slovakia	2	0.07
Germany	35	1.25	2015	28	Slovenia	2	0.07
Greece	140	5.02	2015	29	Spain	64	2.29
Hungary	4	0.14	2015	30	Sweden	193	6.92
Iceland	11	0.39	2015	31	Switzerland	130	4.66
Ireland	45	1.61	2015	32	Turkey	24	0.86
Italy	162	5.81	2015	33	Ukraine	11	0.39
Lithuania	7	0.25	2015	34	United Kingdom	820	29.4
Industry Sectors							Observatio
A - Agriculture, forestry and fishing							40
B - Mining and quarrying							165
C - Manufacturing							1,230
D - Electricity, gas, steam and air conditioning supply							87
E - Water supply; sewerage, waste management and remediation activities							24
F - Construction							101
G - Wholesale and retail trade; repair of motor vehicles and motorcycles							225
H - Transportation and storage							104
I - Accommodation and food service activities							64
J - Information and communication							357
L - Real estate activities							28
M - Professional, scientific and technical activities							169
N - Administrative and support service activities							94
Q - Human health and social work activities							40
R - Arts, entertainment and recreation							42
S - Other service activities							19

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 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.

Table 2 - Variable definitions and data sources

Variables	Description
<i>Performance Measures</i>	
Market to Book Ratio	Ratio of market value of firm to book value of total assets, where market value of firm difference between book value of total assets and capital plus market capitalization
Return on Assets (ROA)	Ratio of net income to total assets
<i>Other Measures of Performance</i>	
Equity MTB	Ratio of market value of equity to book value of equity, where market value of equity difference between equity and reserve minus capital plus market capitalization (i.e. multiplier of number of outstanding shares and share price)
Return on Investment (ROI)	Ratio of earnings before interest and tax to total assets
<i>Corporate Fraud (Corruption) Variables</i>	
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
<i>Control Variables: Firm Characteristics</i>	
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 firm debt (i.e. to credit institutions, the part of long-term debt which is payable within a year, bond while long-term financial debts (i.e. to credit institutions, (loans, credits), bonds with maturity 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
<i>Control Variables: Governance Variables</i>	
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
<i>Control Variables: Board/Management Characteristics</i>	
Average Executives Age	Average age of executives' age in the firm
Average Board Age	Average age of board members' age in the firm
<i>Instrumental Variables</i>	
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
Note: The table reports the variables definitions. All the above-mentioned variables are the calculation of authors using Orbis elec database.	

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.

3.2.2 Corruption variables

The 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. LexisNexis was our definition provider but also our source of data. Specifically,

we used information provides by LexisNexis World Compliance™ Data¹², 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, reliable and current database of sanctions, enforcements, PEP and negative news available all over the world. These information are 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”, from worldwide sanction lists (OFAC, EU, UN, BOE, FBI BIS, etc.) and enforcement lists and court filings (FDA, U.S. HHS, UK FSA, SEC and more - about 500 enforcement agencies around the world). 2)” Politically Exposed Persons (PEPs)”. 3) “Adverse Media”: 35,000 news worldwide.

To identify corruption, avoiding that the results on basis of a single proxy, we construct 5 proxies of firm-specific measures of corruption-level: 1) *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; 2) *Percentage of Corrupt Executives*¹³ is defined as percentage of corrupt executives with respect to total executives in the firm; 3) *Percentage of Corrupt Senior Executives*¹⁴, calculated as percentage of corrupt senior executives with respect to total executives in the firm; 4) *Percentage of Corrupt Female Board Members* is the percentage of corrupt female board members with respect to total board members in the firm; and 5) *Percentage of Corrupt Female Executives* is the percentage of corrupt female executives with respect to total executives in the firm.

¹² 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>

¹³ 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.

¹⁴ These executives are all top-level executives such as CEOs, CFOs, and COO among others.

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 of the firm. In particular, we use 3 alternative proxies which are as follows: 1) *Percentage of Board Members Politically Exposed*, calculated as the sum of politically exposed board members divided by total board members in the firm; 2) *Percentage of Executives Politically Exposed*, calculated as the sum of politically exposed executives divided by total executives in the firm; 3) *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.

3.2.3 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 vulnerable¹⁵ 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

¹⁵ 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.

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 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 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:

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

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 and 2), 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 . $\text{Board Corruption}_{i,t}$ can be any of the following: *Percentage of Corrupt Board Members, Percentage of Politically Exposed Board Members, 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 CEO, Percentage of Corrupt Female Executives, Percentage of Politically Exposed Executives, Percentage of Politically Exposed Senior 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*. τ_j and γ_k control for the industry and country fixed effects¹⁶, 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.

¹⁶ We control only for industry and country fixed effects as we can't use firm fixed effects due to cross-sectional nature of data.

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 paper), 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 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.

4. Descriptive Statistics

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

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

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.

Table 4 – Correlations

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
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																		
7 % of Corrupt Board Members	0.03	0.04	0.06	0.07	1.00																	
8 % of Politically Exposed Board Members	0.04	0.04	0.06	0.07	0.84	1.00																
9 % of Corrupt Executives	-0.02	0.01	0.03	0.03	0.61	0.50	1.00															
10 % of Politically Exposed Executives	0.00	0.00	0.03	0.03	0.28	0.24	0.32	1.00														
11 % of Corrupt Senior Executives	-0.01	0.02	0.02	0.03	0.58	0.49	0.86	0.27	1.00													
12 % of Senior Executives Politically Exposed	0.01	0.02	0.06	0.06	0.50	0.57	0.69	0.31	0.85	1.00												
13 Average Board Age	0.02	-0.01	0.03	0.03	0.08	0.06	0.03	0.05	0.05	0.01	1.00											
14 Average Executives Age	-0.04	-0.03	0.00	-0.01	-0.01	-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	0.20	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	0.01	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	0.09	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	0.23	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	0.03	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	-0.07	-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	0.12	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	-0.02	-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	-0.02	-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	

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 brevity) 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 phenomenon into the firm.

5. Results

In this section of the paper, 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.

5.1 Main empirical analysis

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.

Table 5 - Main regression results for the impact of firm-specific corruption on firm value

The table presents results of 2SLS regression for the sample of 2789 firms. The dependent variable is: (1) *Return on Assets (ROA)* and (2) *Market to Book Ratio (MtB)*. The independent variables (i.e. main variable of interest) are: (1) *Percentage of Corrupt Board Members*, a percentage of corrupt board members with respect to total board members in the firm; (2) *Percentage of Corrupt Executives*, a percentage of corrupt executives with respect to total executives in the firm; (3) *Percentage of Corrupt Senior Executives*, a percentage of corrupt senior executives with respect to total executives in the firm and, (4) *Percentage of Corrupt CEO*, a percentage of corrupt CEOs with respect to total CEOs in 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 restrictions 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.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA	ROA	ROA	ROA	MtB	MtB	MtB	MtB
Explanatory Variables	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Percentage of Corrupt Board Members	-0.614*** (0.000)				-0.810*** (0.008)			
Percentage of Corrupt Executives		-0.997*** (0.002)				-1.010** (0.013)		
Percentage of Corrupt Senior Executives			-0.877*** (0.002)				-0.890** (0.014)	
Percentage of Corrupt CEO				-1.012** (0.032)				-1.026* (0.057)
Average Board Age	0.001 (0.107)				-0.001 (0.411)			
Average Executives Age		0.000 (0.658)	0.000 (0.629)	0.001 (0.505)		-0.003** (0.042)	-0.003** (0.048)	-0.003 (0.133)
Board Size	-0.008*** (0.000)	-0.006*** (0.001)	-0.007*** (0.000)	-0.006* (0.058)	-0.006*** (0.001)	-0.004** (0.033)	-0.005** (0.012)	-0.003 (0.281)
Board Gender Diversity	0.100*** (0.002)	0.064 (0.102)	0.076** (0.048)	0.105** (0.047)	-0.052 (0.321)	-0.073 (0.193)	-0.060 (0.269)	-0.031 (0.635)
Firm Age	0.025*** (0.000)	0.027*** (0.000)	0.024*** (0.000)	0.018** (0.049)	-0.006 (0.401)	-0.005 (0.513)	-0.008 (0.299)	-0.013 (0.203)
Firm Size	0.062*** (0.000)	0.059*** (0.000)	0.059*** (0.000)	0.070*** (0.000)	0.085*** (0.000)	0.076*** (0.000)	0.076*** (0.000)	0.088*** (0.000)
Financial Leverage	-0.322*** (0.000)	-0.309*** (0.000)	-0.290*** (0.000)	-0.293*** (0.000)	-0.318*** (0.000)	-0.303*** (0.000)	-0.284*** (0.000)	-0.288*** (0.000)
Assets Growth	0.029** (0.025)	0.028** (0.042)	0.030** (0.028)	0.027 (0.104)	0.020 (0.148)	0.023* (0.093)	0.025* (0.064)	0.022 (0.207)
Tangibility	0.063*** (0.007)	0.057** (0.031)	0.061** (0.025)	0.038 (0.344)	0.099*** (0.006)	0.096*** (0.008)	0.100*** (0.007)	0.077* (0.098)
Ownership	0.009 (0.646)	0.020 (0.338)	0.012 (0.616)	0.014 (0.650)	-0.027 (0.428)	-0.010 (0.762)	-0.019 (0.592)	-0.017 (0.687)
R&D Intensity	-0.776*** (0.000)	-0.797*** (0.000)	-0.845*** (0.000)	-0.759*** (0.001)	0.014 (0.952)	-0.030 (0.902)	-0.078 (0.748)	0.009 (0.976)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen J Statistic (p-value)	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified
Kleibergen-Paap rk LM statistic	30.953 (0.000)	19.683 (0.000)	19.592 (0.000)	6.245 (0.012)	30.953 (0.000)	19.683 (0.000)	19.592 (0.000)	6.245 (0.012)
Kleibergen-Paap Wald rk F statistic	32.967	20.958	20.527	6.174	32.967	20.958	20.527	6.174
Observations	2789	2789	2789	2489	2789	2789	2789	2789

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 our models 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 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, we apply 2SLS method for correcting the issues of endogenous measures of corruption. In columns 1-5, the second stage regressions' results of corruption impact on *Return on Assets (ROA)* report that the coefficients of fitted value of *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, *Percentage of Corrupt Senior Executives* and *Percentage of Corrupt CEO*, alternatively used are negative and on average, statistically significant at least at 1% level. Similarly, in columns 6-10, the second stage regressions' results of corruption impact on *Market to Book Ratio (MtB)* show that the coefficients of fitted value of *Percentage of Corrupt Board Members*, *Percentage of Corrupt Executives*, *Percentage of Corrupt Senior Executives*, and *Percentage of Corrupt CEO* alternatively used are negative and on average, statistically significant at least at 5% 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* seems 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 board and management level play a vital role in determining firm performance by improving the propensity of executives' opportunism and ineffective governance.

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

Table 6- Regression results for the impact of specific dimension of corruption on firm value

The table presents results of 2SLS regressions for the sample of 2789 firms. The dependent variable is: (1) *Return on Assets (ROA)* and (2) *Market to Book Ratio*, a ratio of market value of firm to book value of total assets. The independent variables (i.e. main variable of interest) are: (1) *Percentage of Politically Exposed Board Members*; (2) *Percentage of Politically Exposed Executives*; (3) *Percentage of Politically Exposed Senior Executives*; and (4) *Percentage of Politically Exposed CEO*. 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 restrictions 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.

(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)
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	ROA	ROA	ROA	ROA	MtB	MtB	MtB	MtB
	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Percentage of Politically Exposed Board Members	-0.763***				-1.007**			
	(0.001)				(0.010)			
Percentage of Politically Exposed Executives		-0.343**				-0.348**		
		(0.010)				(0.042)		
Percentage of Senior Executives Politically Exposed			-1.196***				-1.212**	
			(0.005)				(0.027)	
Percentage of Politically Exposed CEO				-1.034**				-1.048*
				(0.021)				(0.054)
Average Board Age	0.001				-0.002			
	(0.303)				(0.186)			
Average Executives Age		0.001	-0.001	-0.000		-0.003*	-0.004**	-0.004**
		(0.505)	(0.597)	(0.864)		(0.088)	(0.014)	(0.035)
Board Size	-0.008***	-0.016***	-0.008***	-0.007***	-0.006***	-0.014***	-0.006***	-0.005**
	(0.000)	(0.000)	(0.000)	(0.006)	(0.002)	(0.003)	(0.008)	(0.044)
Board Gender Diversity	0.126***	0.051	0.103**	0.131***	-0.016	-0.086	-0.033	-0.005
	(0.000)	(0.185)	(0.011)	(0.006)	(0.758)	(0.142)	(0.543)	(0.939)
Firm Age	0.027***	0.025***	0.022***	0.021***	-0.004	-0.006	-0.009	-0.010
	(0.000)	(0.000)	(0.001)	(0.008)	(0.559)	(0.435)	(0.250)	(0.281)
Firm Size	0.060***	0.068***	0.061***	0.066***	0.083***	0.085***	0.078***	0.083***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Financial Leverage	-0.319***	-0.339***	-0.289***	-0.311***	-0.315***	-0.334***	-0.284***	-0.305***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Assets Growth	0.030**	0.033**	0.030**	0.037**	0.020	0.028*	0.025*	0.032*
	(0.024)	(0.024)	(0.036)	(0.019)	(0.138)	(0.051)	(0.071)	(0.050)
Tangibility	0.070***	0.055**	0.086***	0.074**	0.109***	0.094***	0.125***	0.114**
	(0.003)	(0.021)	(0.006)	(0.040)	(0.004)	(0.008)	(0.004)	(0.012)
Ownership	0.011	-0.006	0.017	0.023	-0.024	-0.037	-0.014	-0.007
	(0.572)	(0.795)	(0.525)	(0.418)	(0.472)	(0.286)	(0.709)	(0.856)
R&D Intensity	-0.766***	-0.629***	-0.824***	-0.641***	0.026	0.140	-0.057	0.128
	(0.000)	(0.006)	(0.000)	(0.008)	(0.911)	(0.616)	(0.816)	(0.667)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hansen J Statistic (p-value)	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified	Exactly identified
Kleibergen-Paap rk LM statistic	24.983	10.088	14.106	7.797	24.983	10.088	14.106	7.797
	(0.000)	(0.002)	(0.000)	(0.005)	(0.000)	(0.001)	(0.000)	(0.005)
Kleibergen-Paap Wald rk F statistic	26.207	10.114	14.350	7.744	26.207	10.114	14.350	7.744
Observations	2789	2789	2789	2789	2789	2789	2789	2789

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, we apply 2SLS method for correcting the issues of endogenous measures of corruption. In columns in columns 1-5, the second stage regressions' results of corruption impact on *Return on Assets (ROA)* report that the coefficients of fitted value of *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives*, *Percentage of Corrupt Senior Executives* and *Percentage of Corrupt CEO*, 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. Similarly, in columns 6-10, the second stage regressions' results of corruption impact on *Market to Book Ratio (MtB)* show that the coefficients of fitted value of *Percentage of Politically Exposed Board Members*, *Percentage of Politically Exposed Executives*, *Percentage of Corrupt Senior Executives*, and *Percentage of Corrupt CEO* 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. 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 2* 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.

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 the two-stage least squares (2SLS) model. With regards to the 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.

Table 7.1: 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** (0.027)			-3.513*** (0.010)		
Percentage of Corrupt Female Executives		-9.794* (0.086)			-9.659* (0.053)	
Percentage of Corrupt Female Senior Executives			-15.067 (0.269)			-14.859 (0.246)
Average Board Age	-0.002 (0.184)			0.001 (0.420)		
Average Executives Age		-0.005** (0.039)	-0.008 (0.146)		-0.002 (0.402)	-0.004 (0.394)
Board Size	-0.002 (0.409)	-0.001 (0.740)	0.002 (0.824)	-0.005** (0.027)	-0.004 (0.374)	-0.000 (0.963)
Board Gender Diversity	0.592** (0.043)	0.296 (0.134)	0.469 (0.286)	0.588*** (0.002)	0.428** (0.014)	0.598 (0.147)
Firm Age	-0.008 (0.344)	-0.008 (0.517)	0.013 (0.633)	0.024*** (0.000)	0.024** (0.027)	0.045 (0.103)
Firm Size	0.088*** (0.000)	0.083*** (0.000)	0.095*** (0.003)	0.064*** (0.000)	0.066*** (0.000)	0.078*** (0.007)
Financial Leverage	-0.316*** (0.000)	-0.296*** (0.001)	-0.140 (0.486)	-0.320*** (0.000)	-0.302*** (0.000)	-0.148 (0.442)
Assets Growth	0.009 (0.607)	0.011 (0.568)	0.015 (0.573)	0.021 (0.164)	0.016 (0.392)	0.020 (0.438)
Tangibility	0.098** (0.028)	0.054 (0.412)	0.021 (0.868)	0.062** (0.044)	0.015 (0.800)	-0.017 (0.891)
Ownership	-0.007 (0.860)	-0.057 (0.340)	-0.121 (0.384)	0.024 (0.316)	-0.026 (0.628)	-0.089 (0.504)
R&D Intensity	-0.104 (0.679)	-0.109 (0.706)	-0.266 (0.470)	-0.865*** (0.000)	-0.875*** (0.000)	-1.030*** (0.001)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Hansen J Statistic	Exactly	Exactly	Exactly	Exactly	Exactly	Exactly

(p-value)	Identified	Identified	Identified	Identified	Identified	Identified
Kleibergen-Paap rk LM statistic	9.994 (0.000)	4.627 (0.031)	1.442 (0.229)	9.994 (0.000)	4.627 (0.031)	1.442 (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

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 7.1, 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. We reported also the results concerning male corruption to compare the magnitude (Table 7.2).

Table 7.2: 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*** (0.009)			-0.743*** (0.000)		
Percentage of Corrupt Male Executives		-1.127** (0.013)			-1.111*** (0.002)	
Percentage of Corrupt Male Senior Executives			-0.945** (0.014)			-0.932*** (0.002)
Average Board Age	-0.001 (0.503)			0.002* (0.098)		
Average Executives Age		-0.003* (0.060)	-0.003* (0.073)		0.001 (0.496)	0.001 (0.437)
Board Size	-0.007*** (0.000)	-0.005** (0.019)	-0.006*** (0.006)	-0.009*** (0.000)	-0.007*** (0.000)	-0.008*** (0.000)
Board Gender Diversity	-0.188** (0.017)	-0.115* (0.074)	-0.094 (0.118)	-0.004 (0.937)	0.022 (0.641)	0.043 (0.316)
Firm Age	-0.006 (0.447)	-0.004 (0.544)	-0.009 (0.226)	0.026*** (0.000)	0.027*** (0.000)	0.022*** (0.000)
Firm Size	0.084*** (0.000)	0.075*** (0.000)	0.075*** (0.000)	0.061*** (0.000)	0.058*** (0.000)	0.058*** (0.000)
Financial Leverage	-0.319*** (0.000)	-0.304*** (0.000)	-0.293*** (0.000)	-0.322*** (0.000)	-0.310*** (0.000)	-0.299*** (0.000)
Assets Growth	0.022 (0.103)	0.024* (0.074)	0.026* (0.057)	0.031** (0.017)	0.029** (0.033)	0.030** (0.024)
Tangibility	0.100*** (0.007)	0.101*** (0.006)	0.105*** (0.005)	0.063*** (0.009)	0.061** (0.020)	0.066** (0.015)
Ownership	-0.031 (0.370)	-0.005 (0.886)	-0.013 (0.725)	0.006 (0.776)	0.026 (0.230)	0.018 (0.440)
R&D Intensity	0.039 (0.868)	-0.021 (0.932)	-0.066 (0.786)	-0.757*** (0.000)	-0.788*** (0.000)	-0.833*** (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	28.970 (0.000)	19.513 (0.000)	19.597 (0.000)	28.970 (0.000)	19.513 (0.000)	19.597 (0.000)
Kleibergen-Paap rk Wald F statistic	30.663	20.785	20.597	30.663	20.785	20.597
Observations	2789	2789	2789	2789	2789	2789

Comparing the results of Table 7.2 (male) with Table 7.1 (female) it results the higher magnitude of the coefficients regarding female corrupted in comparison to male corrupted. 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.

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.

We further investigated as 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)*, available under request to the authors.

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. We tested as 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, available under request to the authors, are consistent with the effect of corruption at gender-level on *Market to Book Ratio* and *Return on Assets (ROA)*.

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.

6. Conclusion

This study 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. It results that firm corruption negatively affects its economic value in terms of market outcome 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. Due to the corrupt nature, firm may be more likely to damage 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. We imagine fraud or corruption allegations did not only affect company performance in the market but also reduce their social credit ratings. 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.

In particular, 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.

Moreover, 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. Our results are in line with Athanasouli and Goujard (2015) that argue that corruption deteriorates the quality of management practices, via lack of trust, in manufacturing firms thereby reduces its productivity.

As further examination, 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, fines and fire out. Further, by nature, the corrupt female board members (or executives) are more honest, more ethical and more reluctant to 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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