

## **Governance disclosure quality and market valuation of firms in UK and Germany**

### **Abstract**

This study develops a ‘comply or explain’ index which captures compliance and quality of explanations given for non-compliance with the corporate governance codes in UK and Germany. In particular, we explain, how compliance and quality of explanations provided in non-compliance disclosures, and various other internal corporate governance mechanisms, affect the market valuation of firms in the two countries. A dynamic generalised method of moments (GMM) estimator is employed as the research technique for our analysis, which enabled us to control for the potential effects of endogeneity in our models. The findings of our content analysis suggest that firms exhibit significant differences in compliance, board independence and ownership structure in both countries. The ‘comply or explain’ index is positively associated with the market valuation of UK firms suggesting that compliance and quality governance disclosure is value relevant in the UK. Institutional blockholders’ ownership is however, negatively associated with the market value of firms, which raises questions about the monitoring role of institutional shareholders in both countries. We argue that both compliance and explanations given for non-compliance are equally important, as long as valid reasons and justifications for non-compliance are provided by the reporting companies. These findings thus imply that the ‘comply or explain’ principle is working well and that UK and German companies could benefit from the flexibility offered by this principle. With respect to the role of board size, board independence, ownership structure, and institutional ownership of firms, this study offers policy implications.

**Keywords:** Governance disclosure quality, market valuation, corporate governance systems, governance index, compliance.

## 1. Introduction

In the aftermath of the 2007–2009 global financial crisis corporate governance regulation has received considerable attention. The severe economic and social impact of the crisis and related corporate scandals resulted in major changes in the governance structure and regulations in most countries around the world. For instance, the Walker (2009) review of corporate governance mechanisms in the UK and The Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) in the US recommended substantial changes to the corporate governance mechanisms of financial firms. Since the 2007-2009 financial crisis was attributed to the weak corporate governance practices at major financial institutions (Kirkpatrick, 2009; Conyon et al., 2011), the associated reviews specifically focused on financial firms. This highlights the perceived importance of firm-level corporate governance mechanisms for organisational performance and protecting the interests of stakeholders.

A considerable amount of literature has therefore examined the impact of corporate governance mechanisms on firm performance. For example, Ntim, Lindop & Thomas (2013) suggest that improving risk reporting as well as risk management practices produces positive effects on the quality of risk disclosure/management practices in South African companies. Similarly, Tan & Liu (2016) document that as compared to several other factors governance structure variables can better explain the long-term idiosyncratic volatility of Australian firms. Furthermore, Farag & Mallin (2017) report that board diversity reduces banks' vulnerability to the effects of financial crisis in Europe. Therefore, in relation to a firm's operations and long-term success all these findings pinpoint the important role of corporate governance mechanisms in different countries.

Although conceptually and theoretically the link between corporate governance and performance is clear but the overall findings of existing governance-performance literature are inconclusive. As such there are studies which report a strong positive relationship (see e.g., Durnev & Kim, 2005; Klapper & Love, 2004), while others document a negative relationship (see e.g., Bauer, Guenster, & Otten, 2004); or no relationship (see e.g., Schultz, Tan, & Walsh, 2010; Wintoki, Linck, & Netter, 2012) between corporate governance and firms' performance. In the context of the 2007-2009 financial crisis, a recent study by Gupta, Krishnamurti &

Tourani-Rad (2013) document that well-governed companies do not necessarily out-perform poorly governed companies. However, an emerging stream of research in this area argues that the majority of the index-based studies have focused only on the compliance aspect of ‘comply or explain’ codes. As the governance systems based on the ‘comply or explain’ principle have two important elements, ‘comply’ and ‘explain’, emphasising on just one aspect i.e. compliance is not sufficient as the ‘explain’ aspect of such systems is equally if not more important than the other (Shrives and Brennan, 2017). The existence of inconclusive evidence in this area, in general, and existence of limited evidence on the explain element of the governance codes in particular, call for further investigations.

Considering all of the above arguments this study contributes to this line of literature and examines the relationship between the quality of explanations provided by companies when they chose non-compliance and the market valuation of firms across two different corporate governance systems, namely, the UK and Germany. As suggested by Van Essen, Engelen, & Carney (2013), corporate governance is a context-specific issue, and as a result, the impact of corporate governance mechanisms could be different in different countries. In terms of the legal and financial systems, corporate governance regulations, institutional settings, and capital market regulations, there are substantial differences between Germany and the UK. However, the corporate governance systems in the two countries are based on the ‘comply or explain’ principle. Therefore, there may be different implications of firm-level corporate governance mechanisms on the market value of firms in the two countries. In line with this, this study investigates whether or not the relationship between the quality of explanations and firms’ market value is different in UK and Germany. In other words, the study sheds light on how corporate governance disclosures are perceived by stakeholders in the two governance systems which are based on the same principle of ‘comply or explain’ but have some key institutional differences.

This paper therefore makes significant contributions to the existing corporate governance literature. Unlike previous index-based studies which only cover the compliance aspect, we develop a ‘comply or explain’ index, that takes into account the level of compliance as well as the quality of reported explanations for non-compliance with the prescribed corporate governance codes. We argue that focusing only on the compliance aspect of a ‘comply or

explain' principle would undermine the second important pillar of a 'comply or explain' system of corporate governance – the explanations reported for non-compliance with corporate governance codes. A recent version of *The UK Corporate Governance Code (2018)* requires each listed company to justify and clearly explain the reasons for non-compliance in case a company has implemented alternative governance practices, other than those prescribed in the Code. The Code state, that:

*“Explanations should set out the background, provide a clear rationale for the action the company is taking, and explain the impact that the action has had. Where a departure from a Provision is intended to be limited in time, the explanation should indicate when the company expects to conform to the Provision. Explanations are a positive opportunity to communicate, not an onerous obligation”.*

(Financial Reporting Council, 2018, p. 2).

This clearly highlights the importance attached to explanations by the regulator in case of non-compliance. The current study, therefore, focuses on the quality of explanations provided by companies and its association with the market valuation of firms. Using a sample of 120 firms from the UK and Germany for the period 2007–2011, the results of this study reveal that compliance or providing good quality explanations is positively associated with the market value (Tobin's Q) of firms in the UK and Germany. In terms of individual governance mechanisms, board independence is positively associated with the market valuation of German firms, while this relationship is significantly negative for the UK firms. We find that non-institutional blockholders' ownership has a positive impact on the performance of German firms. However, institutional blockholders' ownership is negatively associated with the market valuation of firms in both countries, which raises questions about the monitoring role of institutional shareholders in both countries. This finding contradicts the assumptions of Shleifer & Vishny (1986), who argue that blockholders exercise significant influence over their investee companies. It is therefore argued that institutional investors invest in a number of companies and hence they may not be effectively monitoring their investee companies as compared to non-institutional investors, whose investment is highly concentrated in a few firms.

The rest of the paper is structured as follows. Section 2 provides justifications for choosing the UK-German context. Section 3 presents a review of the relevant literature and develops the research hypotheses. Section 4 contains discussions on the research methodology, data and

econometric specification of the models. Section 5 discusses the results of our empirical analyses. Section 6 concludes the paper by presenting a short summary of the overall contributions and pinpoints the potential implications. The final section also contains a brief note on the research limitations and specifies avenues for future research.

## **2. Why the United Kingdom and Germany?**

The publication of the *Cadbury Report* (1992) in the UK could be considered as the basis for various corporate governance reforms around the world over the last three decades. Unlike the US and the UK, where corporate laws and governance codes included significant protection for investors, German regulators and policy makers seemed less concerned about the protection of shareholders until the late 1990s (Cromme, 2005). However, German companies listed on foreign stock exchanges were required to fulfil the listing requirements in overseas markets (Baums, 2003). In response to the growing local and international pressures calling for additional corporate governance reforms, the first German *Corporate Governance Code* was published in February 2002, exactly a decade after the publication of *The Cadbury Report*. In addition, there are several key differences between the UK and Germany.

The first key difference between the UK and Germany relates to the purpose of the respective of the corporate governance codes in these countries. In the UK the purpose of the Governance Code is explained by the regulator as “*Good corporate governance should contribute to better company performance by helping a board discharge its duties in the best interests of shareholders; if it is ignored, the consequence may well be vulnerability or poor performance. Good governance should facilitate efficient, effective and entrepreneurial management that can deliver shareholder value over the longer term*” (Financial Reporting Council, 2008, p.1)<sup>1</sup>. German corporate governance code on the other hand, explains the purpose of the code as “*...to promote the trust of international and national investors, customers, employees and the general*

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<sup>1</sup><https://www.frc.org.uk/getattachment/56920102-feeb-4da7-84f7-1061840af9f0/Combined-Code-Web-Optimized-June-2008.pdf>

*public in the management and supervision of listed German stock corporations*” (German Corporate Governance Code, 2008, p.1)<sup>2</sup>. These quotations from the two governance codes indicate that in the UK the focus is on protecting the interests of shareholders while in Germany the code focuses on protecting the interests of a wide range of stakeholders. Similarly, there are also differences in terms of legal systems, capital markets, ownership structures, code formation and developments (Kaufmann & Valderrama, 2008; Seidl, Sanderson, & Roberts, 2012).

In terms of similarities between the UK and Germany, the codes of corporate governance in both countries are based on a ‘comply or explain’ principle. This means that listed companies are required to report if they have complied with the recommended corporate governance provisions and in the case of non-compliance, they are required to provide explanations. The empirical debate about the effectiveness of a unitary board system in the UK versus a two-tier board system in Germany (Davies, 2000), and the effectiveness of a common law system versus a civil law system (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998) provides us with an opportunity to examine the effectiveness of corporate governance regulations in a cross-country setting.

A comparative study could therefore better explain the differences of and implications for national corporate governance regulations. Prior studies have examined the governance-performance relationship in the context of the UK (Dahya, McConnell, & Travlos, 2002; Weir & Laing, 2000; Weir, Laing, & McKnight, 2002), USA (Brown & Caylor, 2006; Gompers, Ishii, & Metrick, 2003), Germany (Drobetz, Schillhofer, & Zimmermann, 2004; Goncharov, Werner, & Zimmermann, 2006), Europe (Bauer, Guenster, & Otten, 2004), and emerging markets (Durnev & Kim, 2005; Klapper & Love, 2004). However, considering the inconclusive international evidence in this area, we contribute to the existing international corporate governance literature in a cross-country setting in the context of the UK and Germany. The next section covers an overview of the existing literature and develops the research hypotheses

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<sup>2</sup> <https://www.dcgk.de/en/code/archive.html>

on the association between internal corporate governance mechanisms and market valuation of firms.

### **3. Literature Review and Development of Hypotheses**

#### *3.1 Developing theoretical framework*

In the existing literature, the relationship between corporate governance and various firm level outcomes is explained with several theoretical perspectives. For instance, agency, stakeholder, stewardship and resource dependence theories have been used extensively to investigate how firm level governance mechanisms affect performance. In this regard, Kumar and Zattoni (2015) recommend the use of multiple theoretical perspectives, particularly when investigating governance issues in different corporate governance systems. Agency theory focuses on issues arising from the separation of ownership and control in publicly listed companies (Jensen & Meckling, 1976). The main argument is that the agency costs arising from the separation of ownership and control cannot be dealt with only through contracts (Hart, 1995).

As managers have control over the free cash flows of a firm, corporate governance mechanisms are needed to monitor managers so that they are not risk-averse and self-serving, to make them accountable and to make sure that the free cash flows are either returned to shareholders, or re-invested for the long-term success of the organisation (Shleifer & Vishny, 1997). The increased monitoring and accountability brought about by strong governance mechanisms, it is assumed, will lead to the efficient use of resources and will be translated into improved profitability and long-term success (Jensen, 1986). The agency theory also assumes that strong internal corporate governance mechanisms will lead to a decrease in agency costs,

that could result in lower premiums being charged by the providers of finance, and a lower cost of capital for the firm (Drobetz, Schillhofer, & Zimmermann, 2004).

Existing literature that adopts agency theory, proposes a positive association between better alignment of managerial incentives and shareholders' interests (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Given its perceived importance for monitoring and protecting the interests of shareholders, researchers have extensively examined how the composition of board of directors (see for example, Adams, Hermalin, & Weisbach, 2010; Hermalin & Weisbach, 2003), board committees and structures (Klein, 1998; Liao, Luo, & Tang, 2015), and compliance with a prescribed code of corporate governance (for a review see, Bozec & Bozec, 2012) affect corporate performance.

From the perspective of stakeholder theory companies are not only responsible to their shareholders but also to meet the needs of their various stakeholders such as, customers, employees, general public including non-governmental organizations, government and local community (Freeman, 1984; Freeman, Wicks, & Parmar, 2004). Therefore, from this theoretical perspective corporate governance mechanisms are needed to protect the interest of a wide group of stakeholders. This is in contrast to the narrow focus on shareholders adopted in agency theory. The managerial and ethical branches of stakeholder theory provide alternative explanations for the responsibilities of management and the information that will be disclosed by companies. The managerial branch of stakeholder theory postulates that corporate governance mechanisms and reporting are driven by the needs of the most powerful stakeholder of an organisation (Deegan, 2002). Therefore, if the most powerful stakeholder demands certain governance mechanisms or information, managers are more likely to implement those



mechanisms and provide such information. However, the ethical branch explains that from an ethical perspective, corporate governance mechanisms and reporting by firms would aim to satisfy the needs of all their stakeholders and companies behave in this way out of necessity to treat everyone fairly (Deegan, 2002).

As mentioned earlier, the UK Corporate Governance Code is developed with a view to protect the interests of shareholders while the German Corporate Governance Code focuses on the needs of multiple stakeholders. Therefore, agency theory may be more appropriate in the UK context while Stakeholder theory provides a better theoretical lens for Germany. However, agency theory is also applicable in the context of Germany but the nature of agency problems might be different. For instance, Faccio and Lang (2002) provide evidence that in Germany only 10% firms are widely held while in the UK the figure is 63%. Similarly, the authors also document that in Germany family ownership is 64% while in the UK it is only 23%. These ownership patterns have been shown to give rise to different types of agency problems between controlling shareholders and minority shareholders (Bebchuk & Weisbach, 2010; Claessens, Djankov, & Lang, 2000). It is therefore argued that agency and stakeholder theories are providing the appropriate frameworks to analyse the relationship between explanations provided by firms and performance in the context of this study.

### *3.2 Compliance with corporate governance codes and firm performance*

As discussed above, theoretically strong corporate governance mechanisms will be associated with good firm performance. In this regard, governance prescriptions provided in corporate governance codes are considered as proxies for strong corporate governance mechanisms. Most prior studies in this area have therefore largely focused on the level of compliance with corporate governance codes by either developing a corporate governance index for each firm

(e.g., Beiner, Drobetz, Schmid, & Zimmermann, 2006; Hooghiemstra, 2012) or by using commercially available corporate governance indices (Gompers, Ishii, & Metrick, 2003; Klapper & Love, 2004; Bauer, Guenster, & Otten, 2004; Bauwhede & Willekens, 2008; Aggarwal, Erel, Stulz, & Williamson, 2010). However, existing evidence on the relationship between a firm's compliance with corporate governance codes and performance is mixed. Studies have reported three types of findings: (i) a positive relationship (Ammann, Oesch, & Schmid, 2011; Chhaochharia & Laeven, 2009; Klapper & Love, 2004; Dharmapala & Khanna, 2013); (ii) a negative relationship (Bauer, Guenster, & Otten, 2004); or (iii) no relationship (Schultz, Tan, & Walsh, 2010; Wintoki, Linck, & Netter, 2012).

There are different explanations in the existing literature about the mixed findings. For instance, Chhaochharia & Grinstein (2007) argue that the impact of compliance/non-compliance may not be uniform, and that it depends on the size of the firm. For a sample of US listed companies, the authors document that large firms that are non-compliant earn positive abnormal returns but small firms that are non-compliant earn negative abnormal returns. This points in the direction that perhaps investors take into account a multitude of factors when using compliance or non-compliance related disclosures in their decision making. Similarly, Van Essen, Engelen, & Carney, (2013) argue that the relationship between governance and performance is context specific hence studies conducted in different context will report different results. Other studies argue that the mixed results may be attributed to the use of methods that fail to control for endogeneity and related issues (see for example, Wintoki, Linck, & Netter, 2012).

This study adds to this stream of literature and provides evidence on the impact of the nature of explanations provided by firms in two similar yet different contexts. It is argued that in addition to communicating their level of compliance it is also important how non-compliance is justified and communicated. Furthermore, it is also argued that the compliance or non-compliance indices in prior studies have entirely focused on one aspect, that is, compliance with a 'comply or explain' principle. However, the explain element of a 'comply or explain' principle has largely been ignored in the existing governance literature. The quality of governance disclosure is important because full disclosure could lead to informed decision making which will also help in enhancing transparency in listed companies (Wu & Bowe,

2012). In line with the index-based studies in the governance literature (e.g., Aggarwal, Erel, Stulz, & Williamson, 2010; Bauer, Guenster, & Otten, 2004; Bauwhede & Willekens, 2008; Beiner, Drobetz, Chmid, & Zimmermann, 2006; Gompers, Ishii, & Metrick, 2003; Hooghiemstra, 2012; Klapper & Love, 2004; Liu, Padgett & Varotto, 2017), we develop a ‘comply or explain’ index which captures not only the level of compliance with corporate governance codes but also the quality of explanations provided by companies when they do not comply with the corporate governance codes.

As the level of compliance has gradually improved, the attention of regulators in the UK and rest of the Europe has shifted to the quality of the reported explanations for non-compliance with the corporate governance codes (European Commission, 2012; Financial Reporting Council, 2012a). The EU regulations 2009 also suggest that the existing ‘comply or explain’ systems needs to be strengthened, and should not be abandoned (European Commission, 2009). It is also evident from the exiting literature that only a few index-based studies have focused on the ‘explain’ element of the ‘comply or explain’ principle. In line with this Rose (2016) shows that Danish firms which either comply or provide plausible explanations for their non-compliance have higher ROA and ROE. Similarly, Shrives and Brennan (2017) focus specifically on the explanations provided for their non-compliance by a sample of FTSE 100 firms. They document that firms exploit the flexibility and attempt to mislead the readers by adopting different strategies, such as, providing ambiguous explanations, communicating that non-compliance is not a big issue, and justifying non-compliance by focusing on the end results.

While reviewing the literature on the effectiveness of compliance in the UK, Dedman (2002) provides evidence suggesting that compliance enhances board oversight, reduces earnings manipulation and is associated with better disciplining of executives. However, MacNeil & Li, (2006) investigate a sample of FTSE 100 companies which were persistently non-compliant with the UK corporate governance code. The authors argue that shareholders of such firms tolerate non-compliance and ignore the nature of explanations as long as such firms are profitable. Furthermore, Luo & Salterio (2014) develop a three-point scale (index) for a sample of Canadian firms to measure compliance and the quality of corporate governance disclosure (in the case of non-compliance). Their index assigns a value of zero for non-

compliance or non-disclosure, '1' for compliance, and '2' for explanations reporting alternative governance arrangements. The index thus captures: (a) full compliance; (b) non-compliance with no explanations for non-compliance; or (c) non-compliance with reasons for non-compliance reported by companies. They report a significantly positive relationship between the quality of corporate governance disclosure and the market value of firms. More recently, Honisberg (2019), documents that in the case of 'comply or explain' governance systems, providing explanations reduce misreporting at hedge funds and leads to better internal control and improved performance.

In order to assess the quality of explanations provided for non-compliance, Arcot & Bruno (2011) develop a corporate governance and disclosure index. They find that firms which are fully compliant or, alternatively, in the case of non-compliance, which fully explain their deviations for non-compliance have a better operating performance. Similarly, with application of corporate governance index for Dutch companies which assigns a lower score to uninformative explanations and higher score to firm-specific detailed explanations reported for non-compliance, Hooghiemstra (2012) argues that firms having concentrated ownership structures are less likely to have disclosure related issues, and, these firms therefore, approach the disclosure related requirements for only symbolic reasons. In line with this, the present study focuses on Germany where concentrated ownership is more common and compare it with the UK where ownership of publicly held firms is more widespread. Therefore, it provides us an opportunity to investigate how the quality of explanations provided in these two different contexts affect firm value.

The above discussion indicates that only a few index-based studies have focused on the disclosure aspect of the 'comply or explain' principle. Furthermore, there is no study which has focused on the quality of explanations provided in a cross-country context. As discussed earlier corporate governance systems in the UK and Germany are both based on the principle of 'comply or explain' but the objectives of both these codes are quite different. Similarly, there are key differences between the two countries in terms of ownership structures and legal systems. Therefore, this study adds to the existing literature by providing evidence whether the quality of explanations provided in two different contexts affect firm value differently. We argue that the existing 'comply or explain' principle explicitly offers firms the flexibility to

either comply or provide an explanation for their non-compliance. Therefore, non-compliant firms are not necessarily badly governed as long as non-compliance is justified and communicated to the relevant stakeholders. Based on this the quality of explanations provided by firms could be considered as important and relevant information that would affect market values of firms both in the UK and Germany. Based on agency and stakeholder theories, firms that appear to have implemented mechanisms to protect the interests of their stakeholders (potential investors and shareholders are one of the major stakeholders) in in both countries should outperform their counterparts with weak governance mechanisms. We therefore develop the following hypothesis:

**H<sub>1</sub>: High Quality corporate governance disclosure is positively associated with the market valuation of firms in the UK and Germany.**

### 3.3 Board size

The size of board of directors is another important determinant of firms' governance mechanisms that affects performance. In majority of cases board size of UK companies varies from 7 to 17 directors (Guest, 2009, p. 32). In contrast, German boards are relatively larger, with board size of 15 to 30 directors (Du Plessis et al, 2012). The larger board size in the case of Germany is because of the two tier-board governance structure as opposed to unitary boards in the UK. In Germany the NEDs sit on supervisory board and include representatives from a number of stakeholders such as, employees, financial institutions and government. In terms of the effect of board size ,Lipton & Lorsch (1992), argue that when board size increases above ten directors, then it creates additional costs for the organisation in the form of a slow decision making process. Neither the UK nor the German corporate governance codes recommend any specific board size for listed companies. However, the *German Codetermination Act* requires that at least one third to half of board members should be representatives of employees on the supervisory boards of companies having more than 500 or over 2,000 employees respectively (Commission of the German Corporate Governance Code, 2015, p. 1). The German system of corporate governance has also put a greater emphasis on employee empowerment, which is often known as a stakeholder-based system of corporate governance. Based on these two

contrasted perspectives on the role of board of directors, this study uses agency theory and stakeholder theories to investigate the impact of board size on firm valuation.

While looking at the findings of the existing literature on board size and performance there is again inconsistent evidence on this issue. Some studies show a significantly positive association between board size and firm performance, which supports the assumptions of agency theory that larger boards enhance monitoring and accountability. In addition to this, resource dependence theory also predicts that larger boards provide a link between the organisation and its external environment (see e.g., Beiner, Drobetz, Schmid, & Zimmermann, 2006; Kiel & Nicholson, 2003). However, larger boards have been shown to be associated with increased agency costs in the existing literature. For instance, examining the impact of board size on the performance of 450 firms across three countries from market-based systems (UK, USA, and Canada) and seven countries from the relationship-based system (Germany, Belgium, Spain, France, Italy, the Netherlands, and Switzerland), De Andres, Azofra & Lopez (2005) show a significantly negative relationship between larger board size and firm performance across the two different corporate governance systems. Similarly, using a large sample of 2,746 UK companies, Guest (2009) finds a negative relationship between board size and the market value of firms and shows consistent results with the earlier findings of Yermack (1996). More recently, Yamori et al (2017) document that in cooperative banks board size is negatively associated with efficiency. Based on the above discussions we develop and test the following research hypothesis:

**H<sub>2</sub>:** *There is a negative relationship between board size and the market valuation of firms in UK and Germany.*

### *3.4 Board independence*

In the context of corporate governance literature, board independence has been regarded as a key internal governance mechanism for firms. The appointment of independent non-executive directors on boards is therefore been widely acknowledged in different corporate governance codes around the world. Initially, *The Cadbury Report* (1992) called for the appointment of at least three independent non-executive directors on corporate boards. Over the last few decades, the proportion of independent non-executive directors on corporate boards has increased to at

least half of the board size for large and at least two for small UK companies (*The UK Corporate Governance Code, 2016*).

In Germany, firms with more than 500 and 2000 employees are legally required to appoint one third to one half of their employees' representatives to the supervisory boards, whereas the remaining members are appointed by the shareholders. The supervisory board, which comprises non-executive directors, is exclusively responsible for monitoring and advising the management board (Davies, 2000). Section B3.3. of The UK Corporate Governance Code (2016) imposes regulatory restrictions on executive directors and requires that *'the board should not agree to a full time executive director taking on more than one non-executive directorship in a FTSE 100 company nor the chairmanship of such a company'*. Section 5.4.5 of the German Corporate Governance Code (2015) stipulates that *'members of the management board of a listed company shall not accept more than a total of three supervisory board mandates in non-group listed companies or in supervisory bodies of non-group companies which make similar requirements'*. It is thus evident that detailed coverage on the presence of non-executive directors in the governance codes of UK and Germany specify the importance given to the presence of non-executive directors on boards for firms' operations and performance in both countries.

There is evidence in the existing literature which documents a positive relationship between the presence of a larger proportion of independent non-executive directors on boards and the financial performance of firms (e.g., Zahra & Pearce, 1989; Aggarwal, Erel, Stulz, & Williamson, 2010). Similarly, Li et al. (2015) show a positive relationship between board independence and performance of Chinese listed companies, and pinpoint the importance of board independence in firms with concentrated ownership structure. For a cross country sample, Hu et al (2020) document that board reforms that improve monitoring and the oversight of management reduce crash risk significantly. From an agency theory perspective, it is expected that the proportion of non-executive directors would signal improved monitoring and therefore will be positively associated with the financial performance of companies. In the context of Germany, a higher proportion of NEDs would signal that such boards are better equipped to protect the interest of a wide range of stakeholders. Thus, in line with the

recommendations of corporate governance codes in the UK and Germany, and based on the assumptions of agency and stakeholder theories, the following research hypothesis is formed:

**H3:** *Existence of independent non-executive directors on boards is positively associated with the market valuation of UK and German companies.*

### 3.5 Number of board meetings

Another key element of an effective corporate board structure that may enhance the performance of firms is related to board meetings (measured by the total number of board meetings during the year). In relation to board meetings, Lipton & Lorsch (1992) argue that time spent on board meetings could be regarded as a resource provided to the organisation, and increasing board activities enhance the monitoring and control function exercised by the board of directors. In line with this, Vafeas (1999) emphasises that firms can improve their internal control mechanisms by increasing their board activities (e.g., frequency of board meetings). In the context of the 2007 financial crisis, Brick & Chidambaran (2010) have reported a positive relationship between board meetings and firm performance. They argue that external market pressures from investors and regulators may significantly influence a firm's management to increase its board activities, which is positively influencing firms' performance. Similarly, in relation to financial institutions, Salim, Arjomandi, & Seufert (2016) document a positive relationship between board meetings and the performance of Australian banks. Although, use of the number of board meetings is only a proxy indicator of board activities and may appear as a rather simplistic representation of a board's activities, however, its the main advantage is that this information is accessible and comparable. Thus, consistent with prior research of Brick & Chidambaran (2010), and bearing in mind the recommendations of *The UK Corporate Governance Code (2016)* and *The German Corporate Governance Code (2015)* we develop the following research hypothesis:

**H4:** *There is a positive relationship between board activity and the market valuation of UK and German companies*



### 3.6 Gearing

The presence of higher debt to equity proportion (gearing) in the statement of financial position is another important control mechanism that can restrain managers from diverting free cash flows to low-return projects. In this regard, Jensen (1986) argues that managers are likely to invest free cash flows in low-return projects instead of distributing it to the shareholders, and gearing can be used as an alternative corporate governance mechanism for controlling such activities. A firm's debt financing provides signal to the market that its managers will be monitored by the creditors and that manager will be willing to distribute free cash flows to the shareholders (Beiner, Drobetz, Schmid, & Zimmermann, 2006).

In the context of Germany, where banks play a significant role in their corporate governance structure, Agarwal & Elston (2001, p. 226) argue that, '*Bank-influenced firms should enjoy increased access to capital through easier access to bank debt or preferential terms on loans. In addition, bank involvement with a firm serves as a signal to outside investors and causes a certification effect, which makes it easier for firms to attract additional equity*'. The huge role played by the German financial institutions consequently put Germany at the forefront of 'bank-based' systems of corporate governance (Luintel et al. 2016). However, empirical evidence on the relationship between gearing and firm performance is inconclusive. Some studies show a negative relationship between gearing and firm performance and confirm the presence of a conflict of interests between shareholders and creditors in highly geared companies (see e.g., Agarwal & Elston, 2001; Bauwhede, 2009; Francis, Hasan, & Wu, 2012). Other studies report a positive relationship between debt financing and firm performance and show that debt holders require additional internal control mechanisms (through debt agreements) beyond those implemented by the firm (see e.g., Beiner, Drobetz, Schmid, & Zimmermann, 2006; Goncharov, Werner, & Zimmermann, 2006). In the context of the UK, McKnight & Weir (2009) document a positive relationship between debt financing and firms' performance. Therefore, based on the free cash flow hypothesis of Jensen (1986), and consistent with prior empirical research (Beiner, Drobetz, Schmid, & Zimmermann, 2006; Goncharov, Werner, & Zimmermann, 2006; Gorton & Schmid, 2000), we develop the following hypothesis:

**H<sub>5</sub>:** *There is a positive relationship between gearing and the market valuation of UK and German companies.*

### 3.7 External blockholders

The presence of external blockholders in the ownership structure exert a significant influence on the corporate governance practices of firms. In this regard, Shleifer & Vishny (1986) argue that although concentrated ownership structure can partly mitigate the free-rider issues in large organisations, it may also expropriate the rights of minority shareholders. While some studies show a positive impact of institutional blockholders' ownership on firm performance (Gorton & Schmid, 2000; Lehmann & Weigand, 2000), other studies report a positive relationship between non-institutional blockholders' ownership and the performance of firms (see e.g., Andres, 2008). It is therefore evident that existing governance literature on the relationship between institutional and non-institutional blockholder ownership and firm performance provides mixed evidence.

On the effectiveness of ownership concentration on firm performance, several studies are specifically carried out in the context of major corporate governance systems, such as the UK (e.g., Leech & Leahy, 1991; Short & Keasey, 1999), the USA (e.g., Agrawal & Knoeber, 1996), Germany (e.g., Andres, 2008; Gorton & Schmid, 2000; Lehmann & Weigand, 2000), Singapore (e.g., Nguyen, Locke & Reddy, 2015) and Japan (Yamuri, Harimaya & Tomimura, 2017). Other empirical studies have examined the impact of external blockholders in two contrasting corporate governance systems i.e. Anglo-Saxon vs relationship-based systems (e.g., Franks & Mayer, 1997; Thomsen, Pedersen, & Kvist, 2006; Gugler, Mueller & Yurtoglu, 2008). Most of these studies have reported a positive association between external blockholdings and firm performance (e.g., Agrawal & Knoeber, 1996; Andres, 2008; Gorton & Schmid, 2000; Leech & Leahy, 1991; Shleifer & Vishny, 1986, amongst others). Therefore, following the theoretical propositions of Shleifer and Vishny (1986) and consistent with prior published literature carried out in the UK, Germany and other countries, we develop the following research hypothesis:

**H<sub>6</sub>:** *There is a positive relationship between blockholders' ownership and the market valuation of UK and German companies.*

Figure 1 below presents a conceptual framework of this research, where the main differences between the two jurisdictions are clearly highlighted.

[insert figure 1 here]

#### **4. Research Methodology and Data**

##### *4.1 Econometric specifications – generalised method of moments model (GMM)*

Recent research has raised serious concerns about the econometric techniques applied in prior corporate governance studies (see e.g., Schultz, Tan, & Walsh, 2010; Wintoki, Linck, & Netter, 2012; Abdallah, Goergen, and O’Sullivan, 2015; Ullah, Akhtar, and Zaefarian, 2018). The governance-performance research has either used an ordinary least squares regression (see e.g., Gompers, Ishii, & Metrick, 2003; Klapper & Love, 2004) or a fixed-effects model (see e.g., Yermack, 1996; Chhaochharia & Laeven, 2009; Ammann, Oesch, & Schmid, 2011). However, the findings reported in these studies should be ‘interpreted with caution’ because the econometric models used in these studies fail to control for different kinds of endogeneity – a situation when the causality may run from performance to governance (Schultz, Tan, & Walsh, 2010, p. 146).

In line with the above arguments, Wintoki, Linck, & Netter (2012) identify three sources of endogeneity, namely: (a) unobserved heterogeneity; (b) simultaneity or reverse causation; and (c) dynamic endogeneity. Unobserved heterogeneity arises when the relationship between governance and performance is affected by unobservable factors (for instance, firm-specific characteristics). Simultaneity or reverse causation arises when governance and performance affect each other simultaneously. For instance, compliance with a corporate governance code may enhance a firm’s performance and valuation, but it is also possible that firms with a higher market valuation may choose strong corporate governance mechanisms (Durnev & Kim, 2005). Moreover, dynamic endogeneity arises when a firm’s past/current performance affects the current/future governance structure of a firm (Wintoki, Linck, & Netter, 2012, p. 582). For example, poor corporate performance may cause changes in the governance structure (e.g., removal of one or more directors from the board by shareholders) of a firm.

While conducting this investigation this study considers all the above mentioned econometric issues in mind and by following Schultz, Tan, & Walsh (2010) and, Wintoki, Linck, & Netter (2012), the following dynamic generalised method of moments (GMM) model estimation is proposed:

$$P_{it} = \partial P_{i,t-1} + G\beta_{it} + Xn_{it} + \mu_{it} + \varepsilon_{it} \quad [1]$$

In equation 1,  $P_{it}$  stands for firm valuation;  $P_{i,t-1}$  is a one period lag operator (previous year performance);  $G\beta_{it}$  represents corporate governance variables;  $Xn_{it}$  represents control variables;  $\mu_{it}$  is firm-specific fixed effects; and  $\varepsilon_{it}$  represents the error term. Table 1 provides definitions of variables. Our main explanatory variable is the ‘comply or explain’ index. Consistent with Arcot & Bruno (2011) and Hooghiemstra (2012), we developed a corporate governance index, which assigns a lower score to uninformative explanations reported by non-compliant firms and vice versa. The index assigns a highest score of 5 to a fully compliant firm with all provisions of the UK and German Governance *Codes*. Each non-compliant firm in the sample receives a score from 1 to 5 for each category of explanation reported for non-compliance, and the score considers the relative informativeness of each category of explanation. For instance, a lower score of 1 is assigned when a firm reports ‘no explanation’ for non-compliance; a score of 2 when a firm provides ‘generic’ or ‘standard explanations’ or assurance of future compliance; a score of 3 for an explanation offering alternative corporate governance mechanisms; a score of 4 for partial non-compliance over a temporary period of time; and a score of 5 for high quality detailed and firm-specific explanation.

While examining the differences between compliant and non-compliant UK companies, Arcot & Bruno (2011, p. 12) noted that: ‘*..there should be no difference between a compliant company and a non-compliant company that deviates from standards for good and valid reasons that are fully disclosed*’. In fact, ignoring any aspect of the ‘comply or explain’ principle would result in inaccurate generalisation about the effectiveness of the ‘comply or explain’ principle. Similarly, in relation to compliance and non-compliance in Dutch firms, Hooghiemstra (2012), argues that firms with concentrated ownership structures are less likely to have disclosure related issues, and, that such firms only approach the disclosure requirements

for symbolic reasons only. Therefore, consistent with the existing literature (see e.g., Hooghiemstra, 2012), we use the following approach to develop the index:

The **‘Comply or explain’ index** =  $1(\text{no explanations}) + 2(\text{generic or standard explanations} + \text{assurance of future compliance}) + 3(\text{description of alternative practice}) + 4(\text{partial non-compliance}) + 5(\text{firm-specific detailed explanations}) / \text{Total number of explanations reported by a firm}$ .

Through the application of the content analysis approach we examined 600 corporate governance reports for a sample of 120 UK and German companies, over the period between 2007 and 2011.<sup>3</sup>

Content analysis is widely used in the accounting and finance literature to measure the quality of corporate governance disclosures (see e.g., Beck, Campbell, & Shrives, 2010). Analysing 600 sample reports for 120 firms in two countries, between 2007-2011, we identified instances of compliance/non-compliance in the corporate governance reports and developed a ‘comply or explain’ index for each firm. A higher score on the ‘comply or explain’ index shows a higher level of compliance with the respective corporate governance codes as well as a higher quality of corporate governance disclosure (in terms of the quality of reported explanations). We explain our index construction procedures for a hypothetical company. For instance, if company A is non-compliant with three provisions of the corporate governance code but provides ‘no explanation’ for each deviation, the ‘comply or explain’ index will be:

$$\text{Comply or explain index} = [1(3) + 2(0) + 3(0) + 4(0) + 5(0)]/3 = 1$$

[Insert Table 1 about here]

In order to operationalise the development of ‘Comply or explain’ index, the first author manually read a sample of 600 corporate governance reports for 120 sample companies from both countries. Corporate governance codes in both countries have different requirements, and

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<sup>3</sup> Although the end date of the crisis is not universally agreed in any case, Lu and Whidbee (2013) argue that the financial crisis ended in 2011.

different number of provisions, and this was also one of the reasons for doing a separate regression analysis in subsequent section. The 2006 version of the governance code in the UK has a total number of 50 provisions while the German Corporate Governance Code of 2006 has a total number of 71 requirements. As the number of provisions are different, it is expected that the level of compliance will be different and therefore a simple compliance/non-compliance index will be not be useful for comparability reasons. Instead we use the weighted average index developed by Hooghiemstra (2012). Several steps were used to develop the ‘Comply or explain’ weighted average index. First, each corporate governance report was carefully read to determine whether a company is fully compliant or there are instances of compliance. In the second step, information was collected about the number of provisions with which the company has reported non-compliance. The corporate governance codes in both countries require explanations in response to non-compliance. The denominator in our ‘Comply or explain’ index includes the total number of explanations reported by a non-compliant company. The next step was to individually look into those explanations reported in response to non-compliance and categorise them based on the degree of informative of those explanations. In Table 2 below we develop a taxonomy of those explanations based on their degree of informativeness. An uninformative explanation in response to non-compliance gets a lower score and an informative explanation receives a higher score on the ‘Comply or explain’ index. It is possible that one company has several instances of non-compliance and different types of explanations are reported for each instance of non-compliance. In the above example a company has reported a total number of three explanations and all those three explanations are classified as ‘no explanations for non-compliance (see table 2 below for definitions of each category in our comply or explain index). The coding scheme for each category in Table 2 is developed in line with the prior research [see e.g., Hooghiemstra, 2012).

[Insert Table 2 here]

We also include control variables such as firm size, foreign-listing, firm-specific risk, and research and development expenditure (R&D). We use the natural logarithm of the book value of a firm’s assets to proxy for firm size (Aggarwal, Erel, Stulz, & Williamson, 2010; Chhaochharia & Laeven, 2009; Sarhan et al, 2019). We also control for a firm’s foreign-listing. In line with prior research (e.g., Beiner, Drobetz, Schmid, & Zimmermann, 2006; Schultz, Tan,

& Walsh, 2010), we use firm-specific beta as a proxy for firm-specific risk. Research and development expenditure (hereafter R&D) has been reported by the majority of companies in the UK and Germany. The inclusion of R&D expenditure is capturing a firm's growth opportunities. Consistent with the governance-performance research (e.g., Aggarwal, Erel, Stulz, & Williamson, 2010; Ammann, Oesch, & Schmid, 2011; Bauer, Guenster, & Otten, 2004; Beiner, Drobetz, Schmid, & Zimmermann, 2006; Chhaochharia & Laeven, 2009; Gompers, Ishii, & Metrick, 2003; Klapper & Love, 2004; Yermack, 1996), we use Tobin's Q as a proxy for a firm's market valuation. Tobin's Q is calculated using the following formula:

$$(\text{Total assets} + \text{Market value of equity} - \text{Total common equity} - \text{Deferred taxes}) / \text{Total assets}.$$

The choice of our Tobin's Q measure is consistent with the well-established governance-performance work of Aggarwal et al. (2010), Gompers et al. (2003), Bhagat and Bolton (2008), Bebchuk et al. (2009). There is no doubt that there are more 'sophisticated' approaches used in prior research to calculate Tobin's Q. However, owing to the cross-country nature of our dataset we applied a more simplistic, and representative measure of the market valuation, for which the data was available for most of the sample companies in both countries. The above Tobin's Q measures exclude deferred taxes which resulted in a more refined and accurate measure of a firm valuation. As deferred taxes are taken out it has further diluted the values in the numerator, and as a result we have generally lower Tobin's Q values for most of our sample companies.

#### *4.2 Data and sample*

The data sample (see Tables 3 & 4) includes 60 non-financial firms from MDAX 50 and DAX 30 in Germany for the period ending 2007–2011. MDAX 50 and DAX 30 are the indices for largest 80 companies in Germany. For the purpose of comparability, 60 non-financial firms in the UK were selected based on their size and industrial classification of their corresponding German counterparts. In line with other studies in the area, financial firms and utilities are excluded from our sample as they have to comply with additional regulatory requirements which may affect their performance.

[Insert Table 3 about here]

[Insert Table 4 about here]

Owing to the lack of availability of governance data for small-sized German companies, the scope of the sample is limited to only large companies. The compliance statements of small size German companies are (a) not available, and (b) if they are available, they are in German, and hence it was not possible for the research team to translate those. Owing to the accessibility and readability issues relating to the compliance statements for German companies, we only focused on medium size (MDAX) and large size (DAX30) German companies as these annual reports, compliance statements, and corporate communication documents are available in English. Corporate governance and financial data was extracted from Datastream (now Thomson Eikon), whereas, blockholders' ownership data was collected from Thomson One. All 600 corporate governance reports were downloaded and a manual mechanistic content analysis was carried out to develop a 'comply or explain' index. Table 5 presents a size based comparison of our sample firms, which indicate that the 'size differences' of UK and German firms in our sample are statistically insignificant. Following the matching sample criteria used in the literature (see, Peasnell, Pope and Young, 2001), the total assets of a comparable UK matched firm were chosen in the range of  $\pm 25\%$  of the total assets of a corresponding sample German firm. In Table 5, we also used other size-based measures (number of equity shares, number of employees) when choosing corresponding matching firms in the UK, and mean values for all these relevant size based measures are insignificant. We did not use exactly the same number of firms from the same industry in each country because of the unavailability of the same number of firms in the chosen industries.

[Insert Table 5 about here]

A detailed discussion on the results of our empirical analyses is presented in the following section.

## **5. Empirical analysis**

### *5.1 Univariate analysis*

Table 6 presents descriptive statistics and outcome of the univariate analysis of this study. The 'comply or explain' index is significantly higher for the UK as compared to the German



companies, indicating a higher level of compliance for the UK firms. In terms of board size, the results show that German companies have significantly larger boards where the maximum value for the board size is recorded as 22. One reason for a larger board size could be the two-tier board structure; whereas the other reason is the German codetermination law, which requires that one half of the supervisory boards of listed companies should be comprised of employees' representatives (Du Plessis et al., 2012). German companies also have a significantly higher percentage of non-executive directors on their boards as compared to their UK counterparts (UK = 45.703; Germany = 83.910). The UK companies have a significantly higher number of board meetings, with the average number of annual board meetings for the German and UK firms being 5.923 and 8.793, respectively. German companies have a significantly higher gearing ratio (Germany = 0.254; UK = 0.223), which supports the argument that German banks contribute significantly to the German corporate governance system (Gorton & Schmid, 2000).

[Insert Table 6 about here]

The UK companies have a significantly higher percentage of institutional blockholders' ownership (UK = 14.153 per cent; Germany = 10.130 per cent), while German companies have a significantly higher percentage of non-institutional blockholders' ownership as compared to UK firms (UK = 8.468 per cent; Germany = 38.456 per cent). One of the key differences between corporate governance systems in the UK and Germany is the ownership structure of companies. The empirical literature also shows that German companies have a highly concentrated ownership structure (Goergen, Manjon, & Renneboog, 2008), and that non-institutional blockholders play an important role in the German corporate governance system.

In terms of firm size and firm-specific risk we did not find any significant differences between the UK and German companies. In addition, the UK companies have a significantly higher R&D expenditure as compared to German companies (UK = 0.044; Germany = 0.023) which pinpoint the significantly high level of innovation, spending on new product development, and related initiatives in UK organisations as compared to their counterparts Table 7 below also shows the Percentage of shares owned by German corporations in the sample German companies.

[Insert Table 7 about here]

Table 8 reports the average values of the ‘comply or explain’ index for sample industries in both countries. In Germany, construction and materials companies have the highest ‘comply or explain’ index, followed by automobile and parts, while in the UK, companies in the Personal & Household Goods, and food and beverages industry have the highest score on our ‘comply or explain’ index.

[Insert Table 8 here]

In Table 9 we use a non-parametric test to compare the median values of firms across these two countries. We used Two-sample Wilcoxon rank-sum test, and the Mann-Whitney *p-values* are reported in table 8. The results from non-parametric test reveals significant difference in board structures (board independence of companies in the UK and Germany, with German companies having higher percentage of non-executive directors in their boardrooms).

[Insert Table 9 here]

We now discuss the outcome of our regression analyses in section 5.2 below.

## 5.2 *Regression analysis*

As the most commonly used method of estimation we employ ordinary least squares (OLS) regression analysis as the first technique for estimating our models. . The results of our OLS estimations are reported in Table 10. In order to check the consistency of OLS regression results we follow Wintoki, Linck, & Netter (2012), and apply the Durbin–Wu–Hausman test for endogeneity to our models.

[Insert Table 10 about here]

As reported in Table 11, the results of the Durbin–Wu–Hausman test turns out to be significant which imply that the OLS estimations are inconsistent due to the presence e endogeneity problems.

[Insert Table 11 about here]

We therefore control for minimising the impact of endogeneity and carried out a revised analysis using the dynamic generalised method of moments (GMM) estimation. The output of our GMM estimation is reported in Table 12.

[Insert Table 12 about here]

The results in in Table 12 suggest that the ‘comply or explain’ index is significantly positively associated with the Tobin’s Q for the UK firms. This is consistent with the findings of Arcot & Bruno (2011) which show a positive association between governance compliance and firm performance in the UK. This would mean that that compliance with the recommendations of the corporate governance codes (or non-compliance when valid justification is provided) has a positive effect on the market valuation of firms (see e.g., Beiner, Drobetz, Schmid, & Zimmermann, 2006; Gompers, Ishii, & Metrick, 2003; Klapper & Love, 2004, Honisberg ,2019). The findings also support the idea of self-regulation through the applications of a ‘comply or explain’ principle in the UK which is working well in its existing state.

As the index captures both the level of compliance and quality of explanations so a positive relationship will imply two things: first that compliance has a positive impact; and second, that good quality explanation means that a firm has adopted good alternative governance practices which the capital markets regard as an as alternative to governance compliance. This is consistent Luo & Salterio (2014) which shows a positive impact of corporate governance compliance and disclosure index<sup>4</sup> on the market value of Canadian firms. For German firms, this relationship is also positive but statistically insignificant. We therefore find only partial support for the contention that compliance or justified explanation with *The German Corporate Governance Code* positively affect the market valuation of German companies. These findings indicate that external disclosure quality is more value relevant in a dispersed ownership system, the UK. However, in the context of Germany, the representation of employees and shareholders

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<sup>4</sup> Similar to the ‘comply or explain’ index, the index used by Luo & Salterio (2014) also measures compliance as well as the quality of explanations reported by non-compliant firms.

on the corporate boards of German companies bridge the information asymmetry gap between firms and their stakeholders. This is because most of the stakeholders will have some input in the governance mechanisms of German companies. Therefore, the importance of compliance or quality of disclosure might be perceived as less important by various stakeholders.

The results show a significantly negative relationship between board size and the financial performance of UK firms. The negative relationship between board size and Tobin's Q is in line with the results of existing literature (Yamori et al 2017,; Guest 2009)). For the German sample, we did not find any significant impact of board size on the market valuation of firms. The results of our univariate analysis indicate that board size of German firms is significantly larger than UK firms. However, the characteristics of boards are quite different in the UK from Germany. In German context larger boards could signal a better representation from the key stakeholders of an organisation, such as employees, banks, and shareholders which is expected to produce a positive impact on the valuation of companies. However, as reported by Guest (2009), the existence of larger boards in the UK firms could indicate more agency costs and a negative relationship is therefore observed between board size and firm value in UK companies.

The relationship between board independence and Tobin's Q is shown as significantly negative. This is consistent with the findings reported by Weir & Laing (2000) for the UK firms, and Agrawal & Knoeber (1996), and Francis, Hasan, & Wu (2012) for US firms. Similarly, while examining the causes and impact of the 2007-2008 financial crisis the effectiveness of non-executive directors on corporate boards has also been recently questioned by researchers. For example, Aebi, Sabato, & Schmid (2012) show a negative relationship between the presence of a high percentage of non-executive directors on corporate boards and the financial performance of US firms. In a recent study, Moursli (2020) documents that board independence negatively affects market valuation of Swedish firms and this negatively relationship can be explained by the busyness of such directors. Interestingly, for German firms, we find a significantly positive relationship between board independence and the market valuation of firms. Comparing the UK and German boards, it is evident that German board structures are perhaps more complex with a two-tier system and a wide range representation on boards from employees, banks and shareholders. This positive relationship between the

percentage of non-executive directors on boards and the market valuation of firms supports the assumptions of agency theory and resource dependence theory. It also indicates that the presence of non-executive directors on German firms' corporate boards represent the key stakeholders and the role of which is more effective in monitoring and advising the board of directors. This finding implies that the market may perceive the role of non-executive directors differently in different countries, and consequently, corporate governance mechanisms may not yield same results in different corporate governance systems (Van Essen, Engelen, & Carney, 2013). This finding would question the true independence of the corporate boards in UK firms because a truly independent board is theoretically expected to reduce agency costs and show a positive association with firm performance.

We find a significantly positive relationship between the number of board meetings and the market valuation of both the UK and German firms. This finding is consistent with Brick & Chidambaran (2010) which show a positive relationship between the number of board meetings and organisational performance. The findings indicate that an increase in board activities (measured by the number of board meetings) enhances a firm's monitoring and control functions and are therefore regarded as significant in firms' operations and financial performance. Moreover, our results show that gearing has a significantly positive impact on the market valuation of the UK and German companies. This finding is consistent with the findings reported by Goncharov, Werner, & Zimmermann (2006) for a sample of German firms, and, McKnight & Weir (2009) and Dahya, McConnell, & Travlos (2002) for a sample of UK firms. The significantly positive impact of gearing on the firm market value indicate that capital markets in both the UK and Germany consider gearing as an important strategic factor in organisational corporate governance systems.

The results for the blockholders' ownership show that institutional blockholders' ownership has a negative impact on the market valuation of UK and German firms. This is also consistent with the findings of Gugler, Mueller, & Yurtoglu (2008) where they compare the Anglo-Saxon and relationship-based corporate governance systems. In the context of the UK, Mura (2007) has also reported a significantly negative relationship between institutional blockholders' ownership and the market valuation of UK firms. More recently, regulators in the UK have raised concerns over the monitoring role of the UK institutional shareholders. In order to

address this issue, the Financial Reporting Council issued *The UK Stewardship Code* for the institutional investors in 2012 (Financial Reporting Council, 2012a). The above-mentioned negative relationship between institutional blockholders' ownership and the market valuation of firms suggests that the capital markets in the UK and Germany do not consider institutional investors as effective monitors.

Interestingly, non-institutional blockholders' ownership has a significantly positive impact on the market valuation of UK and German firms. This finding is consistent with Lehmann & Weigand (2000) for German firms, and Short & Keasey (1999) for the UK sample. This outcome of this finding would imply that non-institutional blockholders (individuals, families, corporations) exert a significant influence in monitoring their investee companies. One possible explanation for different findings for non-institutional and institutional blockholders could be, that non-institutional investors (families, individuals and others) investment is highly concentrated in a few firms, and because of their higher investment stakes and substantial exposure to risk, they closely monitor the performance of their investees' companies. On the other hand, institutional investors would usually hold shares in many companies so their exposure to an individual firm would be limited which weakens their incentive to monitor and scrutinise individual companies. This could also indicate that institutional investors invest others' money in these companies while non-institutional investors invest their own money. Therefore, the stake of non-institutional investor could be considered much higher as compared to institutional investors. In fact, the UK regulators have recently issued a separate code for institutional investors in the UK which is called *The UK Stewardship Code*. We therefore argue that our findings about the negative relationship between institutional shareholders' ownership and market valuation of firms confirm the concerns and criticism over the weak monitoring role of institutional investors highlighted in *The UK Stewardship Code*.

In relation to the control variables we find that firm size has a positive association with the market valuation of UK and German firms. This finding supports the contention that larger firms have a higher market valuation from the capital markets in both countries. Foreign listing has a significantly positive impact on the market valuation of German firms, however, for UK companies, the relationship between foreign listing and the performance of firms is statistically insignificant. Firm-specific risk (beta) has a significantly positive impact on the market

valuation (Tobin's Q) of the UK and German firms which is consistent with the findings reported by Beiner, Drobotz, & Schmid (2006). As expected, R&D expenditure has a significantly positive impact on the market valuation of firms for both the UK and Germany companies. This suggests that investment in R&D expenditure is value-relevant and investors are willing to pay a premium for companies with higher spending on R&D. Moreover, our findings are robust when we use an alternative measure for the 'comply or explain' index and an additional explanatory variable in our analyses.

### 5.3 Does the quality of CG compliance/non-compliance explanations depend on the CG structures?

The primary focus of this research is to understand whether governance mechanisms, compliance, and the quality of governance disclosure have implications on firms' market valuation in the UK and Germany. As a supplementary analysis, we tested the determinants of corporate governance compliance and disclosure. In doing so, we included the 'comply or explain' index as the explanatory variable, and firm-level corporate governance attributes as control factors. Instead of using traditional panel data models, we used Ordered Logistic Regressions for our additional analysis, and the results are reported in Table 13. One particular reason for using this approach is that our dependent variable 'comply or explain' index has a meaningful order. The 'comply or explain' index takes a minimum value of one and maximum value of 5 and hence ordered logistic regression was a most suitable methodological choice for this type of investigation. The results for UK firms indicate that institutional blockholders and debt financing have a significant relationship with the 'comply or explain' index which shows the monitoring role of external capital providers. As expected, firm size has a positive relationship with the 'comply or explain' index which indicates that larger firms tend to be fully compliant or they will provide high quality disclosure, and this is in line with the traditional governance-performance research in comparative international context (Klapper and Love, 2004; Chhaochharia & Laeven, 2009; Aggarwal et al., 2010). In case of Germany, non-institutional blockholder ownership is negatively related with the 'comply or explain' index. In the context of Germany, firms with foreign listing have a positive relationship with the 'comply or explain' index which is consistent with the notion that foreign listed firms are subject to additional disclosure requirements in overseas regimes and hence they are more

likely to comply with domestic regulations as overseas listing regulations could often be more stringent than host country's regulations, depending on the jurisdiction(s) where company is listed. Contrary to our expectations, we could not find any significant relationship between board attributes and the 'comply or explain' index in both countries.

[Insert Table 13 here]

#### *5.4 Robustness tests*

Consistent with the previous studies using commercially available ratings (such as, Aggarwal, Erel, Stulz, & Williamson, 2010; Bauer, Guenster, & Otten, 2004; Gompers, Ishii, & Metrick, 2003; Klapper & Love, 2004), we also use commercially available ratings (the Datastream Corporate Governance Score) to test whether the results reported under the 'comply or explain' index are robust when an alternative measure of the quality of a firm corporate governance is used (see Table 14 for details). According to the Datastream 'a corporate governance score is a number between 0 and 100 showing how the company performs compared with the entire ASSET4<sup>5</sup> universe based on the 'value' in the related indicator'. Sales growth was also included as an additional control variable. Consistent with prior literature (see for example, Chhaochharia & Laeven, 2009; Drobetz, Schillhofer, & Zimmermann, 2004; Gompers, Ishii, & Metrick, 2003), sales growth is calculated as – current year's sales minus previous year's sales divided by previous year's sales. It is expected that there will be a positive relationship between sales growth and the performance of firms.

[Insert Table 14 about here]

Table 14 shows that our findings are robust when we use additional control variables and an alternative measure for the quality of corporate governance. Except in the UK sample (refer to Model 5), where the impact of board size and board independence is now significant at the

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<sup>5</sup> ASSET4 AG provides investment research data on the economic, environmental, social, and governance (ESG) aspects of its constituent companies.



10 per cent level only, as compared to the one per cent significance level reported in Table 8. In addition, sales growth is significantly positively associated with Tobin's Q for the UK and German companies. In addition, the post estimation tests, including the Sargan test and the Arellano-Bond test for auto-correlation suggest that the instruments/models are valid.

## **6. Conclusion and Implications**

Over the last three decades, differences in the corporate governance systems of different countries have been widely explored and debated in the accounting, finance, economics, and corporate governance literature. However, very little is known about the implications of these differences for firm performance and actual corporate governance practices in different countries. This study examines the impact of differences in the corporate governance regulations in UK and Germany and examine their impact on firms' governance practices and performance in the two countries. We develop a 'comply or explain' index which not only captures the level of compliance with the governance regulations but also the quality of explanations given for non-compliance in UK and German organisations. Using a sample of 120 German and UK listed companies and through the application of both the univariate and multivariate analyses, this study contributes to the existing literature in two ways. First it explores whether there are differences in corporate governance mechanisms of companies in the two countries, and then examines, how compliance, the quality of explanations provided in non-compliance disclosures, and various other internal corporate governance mechanisms, affect the market valuation of companies in UK and Germany.

The results of our univariate analysis reveal significant differences in the corporate governance mechanisms, ownership structure, and control procedures of UK and German companies. The differences in corporate governance mechanisms have implications for the market valuation of firms in the two countries. For example, the 'comply or explain' index has a significantly positive impact on the market valuation of UK firms. This would mean that fully compliant firms and firms that have implemented strong alternative corporate governance mechanisms get higher market valuation in the UK. Our governance index captures compliance and also assigns a higher score to non-compliant firms that have implemented their own strong governance mechanisms over and above those mechanisms which are prescribed by the

regulators. The ‘comply or explain’ index is however insignificantly associated with the market valuation of German firms, which indicates that investors react differently to the non-compliance disclosure in the two countries. This may indicate the cultural aspect of the user perception in a particular jurisdiction because firms in Germany are generally expected to comply to the given regulation.

Our findings also highlight that the impact of board size on market valuation is different in UK and Germany. While a negative relationship is shown between board size and the market valuation of UK firms, no significant relationship of this kind is indicated by our findings for German firms. This finding implies that similar (but not identical) corporate governance mechanisms may have different implications for firms in different jurisdictions. We argue that because of the two-tier board structure and various stakeholder representations on corporate boards of German firms the negative impact associated with larger boards is mitigated. This finding thus suggests that the negative impact of larger corporate boards depends on the characteristics and types of the directors on the board and the overall board structure. It is also evident from the findings that board size of German firms is significantly larger than the UK firms due to which the characteristics of corporate boards are quite different in the two countries. It is therefore argued that in case of Germany larger boards could signal more representation from the key stakeholders of an organisation, such as employees, banks and shareholders. In contrast, as the regulatory requirements on board size in the UK is different, larger boards could result in more agency costs. These findings therefore present policy implications on the regulation about board size and structure in the UK and other countries.

In relation to the positive impact of gearing on the market valuation of UK and German firms, our findings support the notion that the level gearing in firms’ capital structure serves as an important corporate governance mechanism in both corporate governance systems. We also find that non-institutional blockholders play a significant monitoring role in the German corporate governance system. Interestingly, and contrary to our expectations, institutional blockholders’ ownership has a negative impact on the market valuation of firms in both countries. In relation to this finding we argue that as institutional investors hold shares in many companies, so their attention exposure to an individual firm may be limited which would reduce their incentive to monitor and scrutinise individual companies in their portfolios. The negative

relationship between institutional blockholders' ownership and market valuation of firms confirms the concerns and criticism over the weak monitoring role of institutional investors highlighted in *The UK Stewardship Code 2016*. It is therefore argued that with respect to the role of institutional investors, our findings have policy implications and present useful insights for governments and regulators in different countries.

As our research focuses on the often-ignored aspect of the 'comply or explain' principle, these findings have implications for practitioners and regulators. We argue that both compliance and the explanations given for non-compliance are equally important as long as companies can offer valid reasons and justifications for the non-compliance with the corporate governance regulations. The findings also highlight that the 'comply or explain' principle is working well in both the UK and Germany and that companies in both these countries could benefit from the flexibility offered by this principle. We argue that the mixed and inconclusive empirical evidence on the relationship between governance and firm performance in the existing literature would indicate that the governance-performance relationship cannot be examined through the lens of a single and universal theory of corporate governance. We therefore propose a multiple theoretical perspective in this area of research and argue that this approach could be helpful in examining the governance-performance relationship in different corporate governance settings. In fact, investigating the complex nature of governance-performance relationship through the application of multiple theories and multiple methods may take us closer to developing a more comprehensive theory of corporate governance. Our findings therefore support the free market perspective on corporate governance regulation and present policy implications on the introduction of 'comply or explain' based governance principles in different countries.

Despite the significant contributions that this study has made to existing literature, we also acknowledge some of the limitations of this research. First despite making substantial efforts in the data collection process we only managed to collect data for 120 companies, and inferences are therefore based on a relatively smaller sample in both countries. We therefore argue that the context of both the UK and German companies, a larger sample would contribute more to the debate on the relationship between the 'comply or explain' principle and the market valuation of UK and German companies. Second, as the governance regulations and

compliance requirements in other European countries are different, it would have been better to include other major European countries, such as; France, Italy, Spain, Netherland, Belgium etc. in the analyses, because inclusion of countries would certainly add more insights to our understandings and the debate on these issues. Third, other board characteristics, such as directors' education, ethnic background, gender diversity, directors' time with the company, and firm's age would certainly produce useful insights in the relationship between the 'comply or explain' principle and the market valuation of firms in both the UK and Germany. However, due to time and resource constraints, coverage of all the above mentioned avenues is out of the scope of this paper, and is therefore left to future research.

## References

- Abdallah, W, Goergen, M, and O'Sullivan, N. (2015). Endogeneity: How failure to correct for it can cause wrong inferences and some remedies. *British Journal of Management*, 26, 791–04.
- Aebi, V., Sabato, G., & Schmid, M. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking & Finance*, 36, 3213-3226.
- Agarwal, R., & Elston, J. A. (2001). Bank–firm relationships, financing and firm performance in Germany. *Economics Letters*, 72, 225–232.
- Aggarwal, R., Erel, I., Stulz, R., & Williamson, R. (2010). Differences in governance practices between US and foreign firms: Measurement, causes, and consequences. *Review of Financial Studies*, 23, 3131–3169.
- Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, 31, 377–397.
- Ammann, M., Oesch, D., & Schmid, M. M. (2011). Corporate governance and firm value: International evidence. *Journal of Empirical Finance*, 18, 36–55.
- Andres, C. (2008). Large shareholders and firm performance—An empirical examination of founding-family ownership. *Journal of Corporate Finance*, 14, 431–445.
- Arcot, S., & Bruno, V. (2011). Silence is not golden: Corporate governance standards, transparency, and performance. Working Paper, ESSEC Business School.
- Bauer, R., Guenster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance. *Journal of Asset Management*, 5, 91–104.
- Baums, T. (2003). Company law reform in Germany. *Journal of Corporate Law Studies*, 3, 181–189.
- Bauwhede, H. V. (2009). On the relation between corporate governance compliance and operating performance. *Accounting and Business Research*, 39, 497–513.
- Bauwhede, H. V., & Willekens, M. (2008). Disclosure on corporate governance in the European Union. *Corporate Governance: An International Review*, 16, 101–115.
- Beck, A. C., Campbell, D., & Shrivies, P. J. (2010). Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British–German context. *British Accounting Review*, 42, 207–222.
- Bebchuk, L., Cohen, A. and Ferrell, A. (2009) 'What matters in corporate governance?', *Review of Financial Studies*, Vol 22, No 2, pp. 783-827.
- Beiner, S., Drobetz, W., Schmid, M. M., & Zimmermann, H. (2006). An integrated framework of corporate governance and firm valuation. *European Financial Management*, 12, 249–283.
- Bhagat, S. and Bolton, B. (2008) 'Corporate governance and firm performance', *Journal of Corporate Finance*, Vol 14, No 3, pp. 257-273.
- Brick, I. E., & Chidambaram, N. (2010). Board meetings, committee structure, and firm value. *Journal of Corporate Finance*, 16, 533-553.
- Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy*, 25, 409–434.
- Cadbury, A. (1992). Report of the Committee on the Financial Aspects of Corporate Governance: The Code of Best Practice: Gee Professional Publishing, London.
- Chhaochharia, V., & Laeven, L. (2009). Corporate governance norms and practices. *Journal of Financial Intermediation*, 18, 405–431.

- Chhaochharia, V., & Grinstein, Y. (2007). Corporate governance and firm value: The impact of the 2002 governance rules. *Journal of Finance*, 62(4), 1789-1825.
- Claessens, S., Djankov, S., & Lang, L. H. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58(1-2), 81-112.
- Commission of the German Corporate Governance Code. (2015). German Corporate Governance Code - Commission of the German Corporate Governance Code.
- Cromme, G. (2005). Corporate governance in Germany and the German corporate governance code. *Corporate Governance: An International Review*, 13, 362-367.
- Dahya, J., McConnell, J. J., & Travlos, N. G. (2002). The Cadbury committee, corporate performance, and top management turnover. *Journal of Finance*, 57, 461-483.
- Davies, P. (2000). Board structure in the UK and Germany: convergence or continuing divergence? *International and Comparative Corporate Law Journal*, 2, 435-456.
- De Andres, P., Azofra, V., & Lopez, F. (2005). Corporate boards in OECD countries: size, composition, functioning and effectiveness. *Corporate Governance: An International view*, 13, 197-210.
- Dedman, E. (2002). The Cadbury Committee recommendations on corporate governance – a review of compliance and performance impacts. *International Journal of Management Reviews*, 4(4), 335-352
- Drobetz, W., Schillhofer, A., & Zimmermann, H. (2004). Corporate governance and expected stock returns: Evidence from Germany. *European Financial Management*, 10, 267-293.
- Du Plessis, J. J., Grobfield, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). *German Corporate Governance in International and European Context*: Springer Heidelberg.
- Durnev, A., & Kim, E. (2005). To steal or not to steal: Firm attributes, legal environment, and valuation. *Journal of Finance*, 60, 1461-1493.
- European Commission (2009) Study on Monitoring and Enforcement Practices in Corporate Governance in the Member States.
- European Commission (2012). Action Plan: European Company Law and Corporate Governance – A Modern Legal Framework for more Engaged Shareholders and Sustainable Companies.
- Faccio, M., & Lang, L. H. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*, 65(3), 365-395
- Farag, H., & Mallin, C. (2017). Board diversity and financial fragility: Evidence from European banks. *International Review of Financial Analysis*, 49, 98-112.
- Financial Reporting Council (2012a). What Constitutes an Explanation under 'Comply or Explain'? Report of Discussions between Companies and Investors.
- Financial Reporting Council (2012b). The UK Stewardship Code 2012, The Financial Reporting Council, UK.
- Financial Reporting Council (2016). The UK Corporate Governance Code 2016, The Financial Reporting Council, UK.
- Francis, B. B., Hasan, I., & Wu, Q. (2012). Do corporate boards matter during the current financial crisis? *Review of Financial Economics*, 21, 39-52.
- Franks, J., & Mayer, C. (1997). Corporate ownership and control in the UK, Germany, and France. *Journal of Applied Corporate Finance*, 9, 30-45.
- Goergen, M., Manjon, M. C., & Renneboog, L. (2008). Recent developments in German corporate governance. *International Review of Law and Economics*, 28, 175-193.

- Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 118, 107–155.
- Goncharov, I., Werner, J. R., & Zimmermann, J. (2006). Does compliance with the German corporate governance code have an impact on stock valuation? An empirical analysis. *Corporate Governance: An International Review*, 14, 432–445.
- Gorton, G., & Schmid, F. A. (2000). Universal banking and the performance of German firms. *Journal of Financial Economics*, 58, 29–80.
- Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *European Journal of Finance*, 15, 385–404.
- Gugler, K., Mueller, D. C., & Yurtoglu, B. B. (2008). Insider ownership, ownership concentration and investment performance: An international comparison. *Journal of Corporate Finance*, 14, 688–705.
- Gupta, K., Krishnamurti, C., & Tourani-Rad, A. (2013). Is corporate governance relevant during the financial crisis? *Journal of International Financial Markets, Institutions and Money*, 23, 85–110.
- Hu, J., S. Li, A. G. Taboada and F. Zhang (2020). 'Corporate board reforms around the world and stock price crash risk', *Journal of Corporate Finance*, 62, pp. 1-24
- Honigsberg, C. (2019). 'Hedge Fund Regulation and Fund Governance: Evidence on the Effects of Mandatory Disclosure Rules', *Journal of Accounting Research*, 57, pp. 845-888.
- Hooghiemstra, R. (2012). What determines the informativeness of firms' explanations for deviations from the Dutch corporate governance code? *Accounting and Business Research*, 42, 1–27.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76, 323–329.
- Kaufmann, S. and Valderrama, M.T. (2008). Bank lending in Germany and the UK: are there differences between a bank-based and a market-based country?. *International Journal of Finance & Economics*, 13, 266-279.
- Kiel, G. C., & Nicholson, G. J. (2003). Board composition and corporate performance: How the Australian experience informs contrasting theories of corporate governance. *Corporate Governance: An International Review*, 11, 189–205.
- Klapper, L. F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, 10, 703–728.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, 106, 1113–1155.
- Leech, D., & Leahy, J. (1991). Ownership structure, control type classifications and the performance of large British companies. *Economic Journal*, 101, 1418–1437.
- Lehmann, E., & Weigand, J. (2000). Does the governed corporation perform better? Governance structures and corporate performance in Germany. *European Finance Review*, 4, 157–195.
- Li, K., Lu, L., Mittoo, U.R. & Zhang, Z. (2015). Board independence, ownership concentration and corporate performance-Chinese evidence. *International Review of Financial Analysis*, 41, 162-175.
- Lipton, M., & Lorsch, J. W. (1992). A modest proposal for improved corporate governance. *Business Lawyer*, 48, 59–77.
- Liu, Y., Padgett, C. & Varotto, S. (2017). Corporate governance, bank mergers and executive compensation. *International Journal of Finance & Economics*, 22, 12-29.

- Lu, W., & Whidbee, D.A. (2013). Bank structure and failure during the financial crisis. *Journal of Financial Economic Policy*, 5, 281-299.
- Luintel, K.B., Khan, M., Leon-Gonzalez, R. & Li, G.. (2016). Financial development, structure and growth: New data, method and results. *Journal of International Financial Markets, Institutions and Money*, 43, pp.95-112.
- Luo, Y., & Salterio, S. E. (2014). Governance quality in a "Comply or Explain" governance disclosure regime. *Corporate Governance: An International Review*, 22, 460–481.
- MacNeil & Li (2006) Comply or Explain: market discipline and non-compliance with the Combined Code. *Corporate Governance: An International Review*, 14(5), 486-496.
- McKnight, P. J., & Weir, C. (2009). Agency costs, corporate governance mechanisms and ownership structure in large UK publicly quoted companies: A panel data analysis. *The Quarterly Review of Economics and Finance*, 49, 139–158.
- Mura, R. (2007). Firm performance: Do non-executive directors have minds of their own? Evidence from UK panel data. *Financial Management*, 36, 81–12.
- Moursli, R. M. (2020). 'The effects of board independence on busy directors and firm value: Evidence from regulatory changes in Sweden', *Corporate Governance: An International Review*, 28, pp. 23-46.
- Nguyen, T., Locke, S. & Reddy, K. (2015). Onership concentration and corporate performance from a dynamic perspective: Does national governance quality matter? *International Review of Financial Analysis*, 41, 148-161.
- Ntim, C.G., Lindop, S. & Thomas, D.A. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis*, 30, 363-383.
- Peasnell, K. V., P. F. Pope and S. Young (2001). 'The characteristics of firms subject to adverse rulings by the Financial Reporting Review Panel', *Accounting and Business Research*, 31, pp. 291-311.
- Salim, R., Arjomandi, A. & Seufert, J.H. (2016). Does corporate governance affect Australian banks' performance? *Journal of International Financial Markets, Institutions and Money*, 43, 113–125
- Sarhan, A. A., C. G. Ntim and B. Al-Najjar (2019). 'Board diversity, corporate governance, corporate performance, and executive pay', *International Journal of Finance & Economics*, 24, pp. 761-786
- Schultz, E. L., Tan, D. T., & Walsh, K. D. (2010). Endogeneity and the corporate governance-performance relation. *Australian Journal of Management*, 35, 145–163.
- Seidl, D., Sanderson, P. & Roberts, J.(2013). Applying the 'comply-or-explain' principle: discursive legitimacy tactics with regard to codes of corporate governance. *Journal of Management & Governance*, 17, 791-826.
- Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94, 461–488.
- Shrives, P. J., & Brennan, N. M. (2017). Explanations for corporate governance non-compliance: A rhetorical analysis. *Critical Perspectives on Accounting*, 49, 31-56.
- Short, H., & Keasey, K. (1999). Managerial ownership and the performance of firms: Evidence from the UK. *Journal of Corporate Finance*, 5, 79-101.
- Tan, M., & Liu, B. (2016). CEO's managerial power, board committee memberships and idiosyncratic volatility. *International Review of Financial Analysis*, 48, 21-30.



- Thomsen, S., Pedersen, T., & Kvist, H. K. (2006). Blockholder ownership: Effects on firm value in market and control based governance systems. *Journal of Corporate Finance*, 12, 246-269.
- Ullah, S., Akhtar, P. and Zaefarian, G. (2018). Dealing with endogeneity bias: The generalized method of moments (GMM) for panel data. *Industrial Marketing Management*, 71, 69-78.
- Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, 53, 119–142.
- Van Essen, M., Engelen, P. J., & Carney, M. (2013). Does “good” corporate governance help in a crisis? The impact of country-and firm-level governance mechanisms in the European financial crisis. *Corporate Governance: An International Review*, 21, 201-224.
- Weir, C., & Laing, D. (2000). The performance-governance relationship: The effects of Cadbury compliance on UK quoted companies. *Journal of Management and Governance*, 4, 265-281.
- Weir, C., Laing, D., & McKnight, P. J. (2002). Internal and external governance mechanisms: Their impact on the performance of large UK public companies. *Journal of Business Finance and Accounting*, 29, 579–611.
- Wu, Y. & Bowe, M. (2012). Information disclosure and depositor discipline in the Chinese banking sector. *Journal of International Financial Markets, Institutions and Money*, 22, 855-878.
- Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105, 581–606.
- Yamori, N., Harimaya, K. and Tomimura, K. (2017). Corporate governance structure and efficiencies of cooperative banks. *International Journal of Finance & Economics*, 22, 368-378.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40, 185–211.
- Zahra, S. A., & Pearce, J. A. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management*, 15, 291–33.

**Figure 1 Conceptual framework**

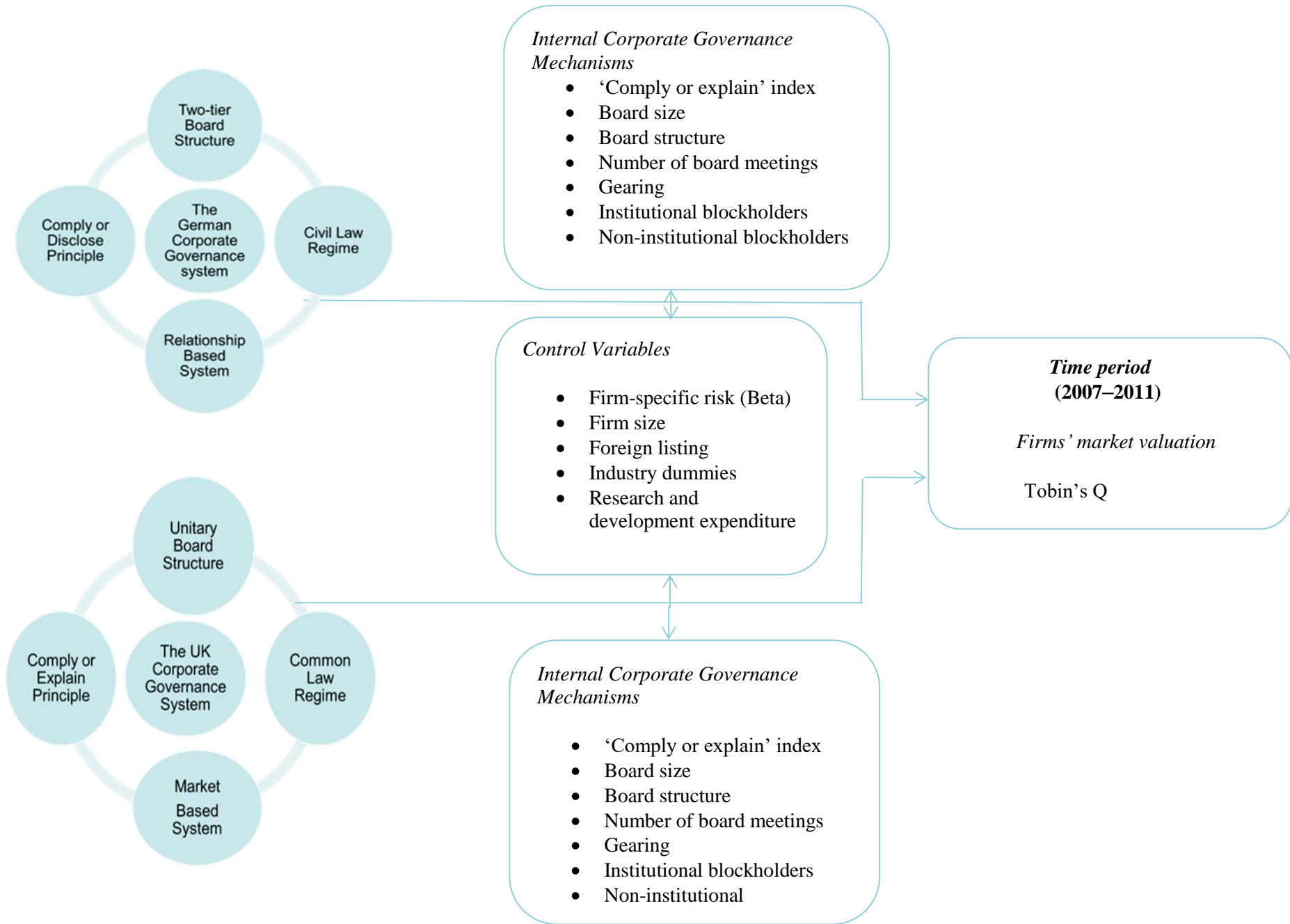


Table 1 Definition of variables

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|                                    |   |
|------------------------------------|---|
| ‘Comply or explain’ index          | An index which assigns a value of 1 to 5 to each firm and takes into account a firm’s compliance, non-compliance and the explanations reported for non-compliance with the corporate governance codes.                |
| Board size                         | The total number of directors serving on the board at the end of the year.  |
| Board independence                 | The ratio of non-executive directors to total board members at the time of reporting.   |
| Number of board meetings           | The total number of board meetings during a year.   |
| Gearing                            | The ratio of a firm’s total debt to the book value of its total assets.   |
| Institutional blockholders (%)     | The percentage of equity (five per cent and above) owned by financial institutions, insurance companies, pension funds and unit trusts.   |
| Non-institutional blockholders (%) | The percentage of equity (five per cent and above) owned by all other external shareholders (excluding institutional shareholders).   |
| Firm size                          | The natural logarithm of the book value of a firm's assets.   |
| Firm-specific risk (beta)          | A measure of firm’s riskiness. The beta factor is derived by performing a least squares regression between adjusted prices of the stock and the corresponding Datastream market index (values taken from Datastream). |
| Foreign-listing                    | A dummy variable that takes a value of one if a firm is cross-listed and zero otherwise.  |
| R&D expenditure                    | Research and development expenditure divided by sales.  |
| Tobin’s Q                          | $\text{Total assets} + \text{Market value of equity} - \text{Total common equity} - \text{Deferred taxes} / \text{Total assets}$ .  |

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**Table 2 Definition of various categories of explanations used in the ‘comply or explain’ index**

| <b>Categories of explanations</b>                          | <b>Description</b>   | <b>Score</b> |
|--|--|--------------|
| a. No explanations for non-compliance                      | When a firm reports no explanation for non-compliance in the corporate governance report.  | 1            |
| b. Generic or standard explanations                        | When a firm explains non-compliance by applying standard phrases, such as ‘in the best interest of the company’.... ‘in our opinion’.... ‘we believe that’.... and so on. There is an explanation, compared to no explanation in this category   | 2            |
| c. Future assurance of compliance                          | When a firm explains that it will implement a <i>Code</i> provision in the following year or in the near future (subsequent years).  | 2            |
| d. Description of alternative practices                    | When a firm is non-compliant with a <i>Code</i> provision but presents alternative corporate governance arrangements implemented by the firm.  | 3            |
| e. Partial non-compliance                                  | When a firm is non-compliant over a particular period of time during the reporting period or it fails to implement all aspects of a specific <i>Code</i> provision.  | 4            |
| f. Firm-specific or context specific detailed explanations | When a firm provides detailed explanations and justifications for non-compliance by referring to its specific context, such as: (a) company size; (b) board size; (c) company structure; (d) company foreign listings or its international operations; (e) industry or market related specific explanations; (f) implementation issues or ineffectiveness of <i>Code</i> provision; and (g) <i>Code</i> conflicts with laws. | 5            |
| g. Total number of explanations reported by a firm         | The total number of explanations reported by a firm, in response to non-compliance with different provisions of the <i>Code</i> . This measure is used in the denominator in our ‘Comply or explain’ index.  |              |

The above taxonomy is developed based on the prior work of Hooghiemstra (2012).

**Table 3 Sample selection**

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| Germany  |            |
|--|------------|
| DAX 30 (large) and MDAX 50 (medium) firms for the period 2007–2011 | 80         |
| Less: financial, insurance and utilities firms                     | <u>(9)</u> |
| Initial Sample   | 71         |
| Less: Firms having compliance statements in German                 | (2)        |
| Less: Firms with no compliance statements on their websites        | <u>(9)</u> |
| Final sample   | <u>60</u>  |
| UK   |            |
| 60 non-financial firms taken from FTSE 100 index based on size     | 60         |

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Note: SDAX (small sized German companies) are excluded. SDAX companies annual reports are written in German and this was one of the reasons for a relatively small sample from Germany, which has also affected and restricted our choice of comparative sample from the UK.

Table 4 Sample characteristics

| Industrial composition       | Germany | %    | UK | %    |
|------------------------------|---------|------|----|------|
| Automobiles & Parts          | 5       | 8.3  | 1  | 1.7  |
| Basic Resources              | 3       | 5    | 9  | 15   |
| Chemicals                    | 9       | 15   | 6  | 10   |
| Construction & Materials     | 1       | 1.7  | 1  | 1.7  |
| Food & Beverage              | 1       | 1.7  | 3  | 5    |
| Health Care & Pharmaceutical | 6       | 10   | 12 | 20   |
| Industrial Goods & Services  | 17      | 28.3 | 13 | 21.6 |
| Media                        | 2       | 3.3  | 1  | 1.7  |
| Oil & Gas                    | 0       | 0    | 3  | 5    |
| Personal & Household Goods   | 6       | 10   | 4  | 6.6  |
| Real Estate                  | 1       | 1.7  | 2  | 3.3  |
| Retail                       | 3       | 5    | 1  | 1.7  |
| Technology                   | 3       | 5    | 1  | 1.7  |
| Telecommunications           | 1       | 1.7  | 1  | 1.7  |
| Travel & Leisure             | 2       | 3.3  | 2  | 3.3  |
| Total                        | 60      | 100% | 60 | 100% |

Table 5 Size based sample comparison

|   | <b>UK</b>  | <b>Germany</b> | <b>t-values</b> |
|---|------------|----------------|-----------------|
| 5 years' average book value of total assets (€ m., end of financial year) | 64,856,313 | 105,700,908    | -1.42           |
| 5 years' average number of equity shares                                  | 6,846,664  | 1,431,722      | 0.93            |
| 5 years' average total number of employees                                | 44,794     | 67,228         | -0.46           |
| Number of firms   | 60         | 60             |                 |

The values for assets and market capitalisation are reported in a common currency (the euro). Differences in sample mean values are reported using t-statistics. The mean differences between all firm-specific characteristics are statistically insignificant.

Table 6 Descriptive statistics and univariate analysis

| Variables                          | UK        |           |        |        | Germany   |           |        |        |
|------------------------------------|-----------|-----------|--------|--------|-----------|-----------|--------|--------|
|                                    | Mean      | Std. Dev. | Min    | Max    | Mean      | Std. Dev. | Min    | Max    |
| Comply or explain index            | 4.129***  | 1.237     | 1.000  | 5.000  | 2.811     | 1.390     | 1.000  | 5.000  |
| Board size                         | 10.030    | 2.384     | 4.000  | 16.000 | 14.483*** | 4.493     | 5.000  | 22.000 |
| Board structure                    | 45.703    | 16.104    | 10.500 | 79.860 | 83.910*** | 3.771     | 45.500 | 88.600 |
| Number of board meetings           | 8.793***  | 2.526     | 3.000  | 25.000 | 5.923     | 1.723     | 4.000  | 13.000 |
| Gearing                            | 0.223     | 0.131     | 0.000  | 0.583  | 0.254**   | 0.139     | 0.003  | 0.636  |
| Institutional blockholders (%)     | 14.153*** | 8.011     | 0.000  | 42.530 | 10.130    | 5.222     | 0.000  | 37.010 |
| Non-institutional blockholders (%) | 8.468     | 9.038     | 0.000  | 77.270 | 38.456*** | 15.446    | 0.000  | 75.120 |
| Firm size                          | 14.948    | 1.852     | 10.152 | 18.976 | 15.488    | 1.415     | 11.874 | 18.625 |
| Firm-specific risk (beta)          | 1.000     | 0.372     | 0.400  | 1.910  | 0.993     | 0.352     | 0.325  | 1.898  |
| R&D                                | 0.044***  | 0.065     | 0.000  | 0.350  | 0.023     | 0.022     | 0.000  | 0.121  |
| Tobin's Q                          | 0.511     | 0.238     | 0.012  | 1.658  | 0.610***  | 0.136     | 0.144  | 0.899  |
| Return on assets (ROA)             | 0.119*    | 0.139     | -0.672 | 0.609  | 0.093     | 0.083     | -0.063 | 0.604  |

T-tests are used to compare the mean values of UK a



Table 7 Percentage of shares owned by German corporations in the sample German companies

| Company                | Investor Name (corporations)              | Percentage of shareholdings |       |       |       |       |
|------------------------|---|-----------------------------|-------|-------|-------|-------|
|                        |   | 2011                        | 2010  | 2009  | 2008  | 2007  |
| Beiersdorf             | Maxingvest AG                             | 50.46                       | 50.46 | 50.46 | 50.46 | 50.46 |
| Brenntag               | Brachem Acquisition S.C.A.                | 36.02                       | 49.61 | -     | -     | -     |
| Clesio                 | Franz Haniel & Cie. GmbH                  | 54.6                        | 54.6  | 54.6  | 55.81 | 52.9  |
| Continental            | B.Metzler seel. Sohn & Co. Holding AG     | 5.19                        | 16.48 | 19.50 | 3.99  | -     |
| Fresenius Medical Care | Fresenius SE & Co KGaA                    | 30.30                       | 35.80 | 36.37 | 35.94 | 36.55 |
| Fraport                | Deutsche Lufthansa AG                     | 9.92                        | 9.93  | 9.94  | 9.95  | 9.96  |
| Fraport                | Land Hessen                               | 31.48                       | 31.50 | 31.57 | 31.59 | 31.62 |
| Fraport                | Stadtwerke Frankfurt am Main Holding GMBH | 20.11                       | 20.12 | 20.16 | 20.17 | 20.19 |
| Heidelbergcement       | Spohn Cement GmbH                         | 25.11                       | 25.11 | 24.42 | 79.06 | 78.57 |
| Man                    | Volkswagen AG                             | 55.90                       | 29.90 | 29.90 | 29.90 | 29.90 |
| Aurubis                | Salzgitter AG                             | 25.00                       | 25.26 | 25.26 | 20.00 | -     |
| Prosiebensat 1 Media   | Lavena Holding 1 GmbH                     | 18.00                       | 25.30 | 25.30 | 25.30 | 13.30 |
| Puma                   | Kering SA                                 | 75.12                       | 70.70 | 69.36 | 65.27 | 62.09 |
| SGL Carbon             | Voith Group                               | 9.14                        | 5.11  | 5.12  | -     | -     |
| SGL Carbon             | Volkswagen AG                             | 8.18                        | -     | -     | -     | -     |
| TUI                    | Geveran Trading Company, Ltd.             | 14.97                       | 14.99 | 14.99 | 15.01 | 5.12  |
| Volkswagen             | Porsche Automobil Holding SE              | 50.73                       | 50.74 | 53.11 | 42.60 | 31.00 |

Source: Thomson One

Table 8 Mean values of the 'Comply or Explain' index across industries in the UK and Germany

| Industries                   | Germany         | UK    |
|------------------------------|-----------------|-------|
| Automobiles & Parts          | 3.124           | 3.996 |
| Basic Resources              | 2.700           | 3.366 |
| Chemicals                    | 2.006           | 3.169 |
| Construction & Materials     | 3.594           | 3.961 |
| Food & Beverage              | 2.956           | 4.647 |
| Health Care & Pharmaceutical | 3.098           | 4.101 |
| Industrial Goods & Services  | 2.207           | 4.483 |
| Media                        | 2.566           | 4.011 |
| Oil & Gas                    | NA <sup>^</sup> | 4.014 |
| Personal & Household Goods   | 3.198           | 4.733 |
| Real Estate                  | 2.228           | 4.272 |
| Retail                       | 3.245           | 3.414 |
| Technology                   | 2.233           | 4.138 |
| Telecommunications           | 3.373           | 3.126 |
| Travel & Leisure             | 2.799           | 2.367 |

Note: ^ indicates that there was no oil and gas firm from this industry in our German sample.

Table 9 Non-parametric test: Two-sample Wilcoxon rank-sum (Mann-Whitney) test

| Variables                          | UK     | Germany | Mann-Whitney p-values |
|------------------------------------|--------|---------|-----------------------|
|                                    | Median | Median  |                       |
| Comply or explain index            | 5.000  | 2.500   | 0.686                 |
| Board size                         | 10.000 | 15.000  | 0.204                 |
| Board structure                    | 44.880 | 85.210  | 0.003                 |
| Number of board meetings           | 9.000  | 6.000   | 0.846                 |
| Gearing                            | 0.215  | 0.250   | 0.413                 |
| Institutional blockholders (%)     | 14.153 | 10.130  | 0.725                 |
| Non-institutional blockholders (%) | 31.468 | 38.456  | 0.277                 |
| Firm size                          | 15.075 | 15.391  | 0.412                 |
| Firm-specific risk (beta)          | 0.970  | 0.993   | 0.500                 |
| R&D                                | 0.018  | 0.022   | 0.506                 |
| Tobin's Q                          | 0.512  | 0.617   | 0.355                 |
| Return on assets (ROA)             | 0.104  | 0.075   | 0.626                 |

Mann-Whitney p-values are used to compare the median values of UK and German firms.

Table 10 Corporate governance and the market valuation of firms (OLS results)

| Variables                          | Model 1<br>UK           | Model 2<br>Germany       |
|------------------------------------|-------------------------|--------------------------|
| 'Comply or explain' index          | 0.0232**<br>(0.0113)    | 0.00305<br>(0.00515)     |
| Board size                         | -0.0123<br>(0.00748)    | 0.00816***<br>(0.00183)  |
| Board independence                 | -0.00168*<br>(0.000881) | -0.00204<br>(0.00182)    |
| Number of board meetings           | 0.0115**<br>(0.00535)   | 0.00390<br>(0.00403)     |
| Gearing                            | 0.370***<br>(0.107)     | 0.232***<br>(0.0508)     |
| Institutional blockholders (%)     | -0.00343*<br>(0.00180)  | -0.00390***<br>(0.00135) |
| Non-institutional blockholders (%) | -0.000480<br>(0.00149)  | 0.000146<br>(0.000466)   |
| Firm size                          | 0.00664<br>(0.0105)     | 0.00745<br>(0.00612)     |
| Firm-specific risk (beta)          | 0.000774<br>(0.0376)    | 0.0924***<br>(0.0192)    |
| Foreign listing                    | 0.161**<br>(0.0654)     | -0.0425***<br>(0.0154)   |
| R&D                                | -0.295<br>(0.222)       | -0.547<br>(0.346)        |
| Constant                           | 0.258*<br>(0.149)       | 0.429**<br>(0.166)       |
| Observations                       | 297                     | 286                      |
| R-squared                          | 0.145                   | 0.270                    |

Standard errors are reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 stand for statistical significance at the 1%, 5% and 10% level, respectively. Tobin's Q is the dependent variable in models 1 and 2. Please see definition of all the variables in Table 1.

Table 11 Results of the Durbin-Wu-Hausman test for Endogeneity

| Variables                          | UK       | Germany  |
|------------------------------------|----------|----------|
| 'Comply or explain' index          | 6.04**   | 7.58***  |
| Board size                         | 2.7      | 19.9***  |
| Board independence                 | 3.66*    | 1.25     |
| Number of board meetings           | 4.59**   | 0.94     |
| Gearing                            | 12.02*** | 20.82*** |
| Institutional blockholders (%)     | 3.64**   | 8.37***  |
| Non-institutional blockholders (%) | 0.10     | 0.10     |
| Firm size                          | 0.4      | 1.48     |
| Firm-specific risk (beta)          | 0.50     | 23.06*** |
| R&D                                | 1.77     | 2.50     |
| Foreign listing                    | 6.04**   | 7.58***  |

Definitions of variables are provided in Table 1. This table reports Durbin-Wu-Hausman test statistics (abbreviated as DWH) for each independent/control variable used in the OLS models reported in Table 6 (e.g., Model 1 – Model 2). The null hypothesis states that all regressors (corporate governance mechanisms) are exogenous. The Durbin-Wu-Hausman test was carried out for all independent/control variables. STATA (1999) provides guidelines about how to carry-out a Durbin-Wu-Hausman test in STATA for each individual variable. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  stand for statistical significance at the 1%, 5% and 10% level, respectively.

Table 12 Corporate governance mechanisms and market-based measure of firm financial performance (Tobin's Q)

| Variables                          | Model 3                   | Model 4                   |
|------------------------------------|---------------------------|---------------------------|
|                                    | UK                        | Germany                   |
| L.Tobin's Q                        | 0.0485***<br>(0.00910)    | 0.238***<br>(0.0310)      |
| 'Comply or explain' index          | 0.0151***<br>(0.00490)    | 0.0389567<br>(.03492)     |
| Board size                         | -0.0146***<br>(0.00308)   | 0.00143<br>(0.00142)      |
| Board independence                 | -0.00126***<br>(0.000364) | 0.00119**<br>(0.000508)   |
| Number of board meetings           | 0.0225***<br>(0.00198)    | 0.00470***<br>(0.000940)  |
| Gearing                            | 0.135**<br>(0.0582)       | 0.0994***<br>(0.0363)     |
| Institutional blockholders (%)     | -0.00159*<br>(0.000936)   | -0.00448***<br>(0.000754) |
| Non-institutional blockholders (%) | 0.00133***<br>(0.000306)  | 0.00136***<br>(0.000208)  |
| Firm size                          | 0.0264***<br>(0.00972)    | 0.0436***<br>(0.00836)    |
| Firm-specific risk (beta)          | 0.0355**<br>(0.0166)      | 0.0743***<br>(0.0104)     |
| Foreign listing                    | 0.0178<br>(0.0697)        | 0.102***<br>(0.0186)      |
| R&D                                | 0.659***<br>(0.0409)      | 0.548***<br>(0.172)       |
| Constant                           | -0.0499<br>(0.145)        | 0.380***<br>(0.119)       |
| AR(1) test (p-values)              | 0.0848                    | 0.0021                    |
| AR(2) test (p-values)              | 0.3054                    | 0.3871                    |
| Sargan test of overidentification  | 51.48                     | 43.13                     |
| Observations                       | 238                       | 230                       |
| Number of firms                    | 60                        | 60                        |

Table 12 shows results of two-step generalised method of moments estimation for 60 German and UK non-financial firms (total 120 firms) over the period 2007–2011. In Model 3 and Model 4, the dependent variable includes the market-based measure of firm performance – Tobin's Q. L.Tobin's Q means lagged values of the dependent variable Tobin's Q. L.Tobin's Q is included as an independent variable in Model 3 and 4. Only one lag of the dependent variable is included in both models. AR (1) and AR (2) are the Arellano–Bond test statistics for first-order and second-order correlation, under the null hypothesis of no serial auto-correlation. The Sargan test statistic is a test of over-identifying restrictions, under the null hypothesis that all instruments are valid. Standard errors reported in parentheses. Definitions of variables are provided in Table 1. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 stand for statistical significance at the 1%, 5% and 10% level, respectively.

Table 13 Ordered logistic regression: Does the quality of corporate governance compliance/non-compliance explanations depend on the corporate governance structures?

| Variables                          | UK           |          | Germany      |          |
|------------------------------------|--------------|----------|--------------|----------|
|                                    | Coefficients | p-values | Coefficients | p-values |
| Board size                         | -0.0730302   | 0.289    | -0.0346722   | 0.240    |
| Board independence                 | -0.0124843   | 0.114    | 0.004276     | 0.891    |
| Number of board meetings           | 0.016351     | 0.753    | -0.0463996   | 0.480    |
| Gearing                            | 2.599591     | 0.007    | -0.4013295   | 0.616    |
| Institutional blockholders (%)     | 0.0408286    | 0.017    | -0.0009966   | 0.963    |
| Non-institutional blockholders (%) | 0.0080415    | 0.547    | -0.0230061   | 0.002    |
| Firm size                          | 0.3811823    | 0.000    | 0.2794454    | 0.004    |
| Firm-specific risk (beta)          | 0.3961351    | 0.270    | 0.2374045    | 0.436    |
| Foreign listing                    | 0.7248223    | 0.192    | 0.9983818    | 0.000    |
| R&D                                | 6.206241     | 0.005    | 4.431379     | 0.406    |
| Observations                       | 297          |          | 286          |          |
| Pseudo R <sup>2</sup>              | 0.0537       |          | 0.0358       |          |

The table reports Ordered Logistic Regression results. The dependent variable is the 'comply or explain' index, and firm-level corporate governance mechanisms are included as explanatory variables. The coefficient for the UK and German sample are reported separately.

Table 14 Sensitivity analysis with the Datastream corporate governance ratings

| Variables                          | Model 5                  | Model 6                   |
|------------------------------------|--------------------------|---------------------------|
|                                    | UK                       | Germany                   |
| L. Tobin's Q                       | 0.0759***<br>(0.0141)    | 0.294***<br>(0.0217)      |
| Corporate governance score         | 0.000684**<br>(0.000286) | 0.00160<br>(0.00111)      |
| Board size                         | -0.00657*<br>(0.00398)   | 0.00115<br>(0.00173)      |
| Board independence                 | -0.000818*<br>(0.000483) | 0.00116**<br>(0.000541)   |
| Number of board meetings           | 0.0235***<br>(0.00341)   | 0.00546***<br>(0.0015)    |
| Gearing                            | 0.149**<br>(0.0636)      | 0.0937***<br>(0.0344)     |
| Institutional blockholders (%)     | -0.00292**<br>(0.00133)  | -0.00432***<br>(0.000785) |
| Non-institutional blockholders (%) | 0.00142***<br>(0.000423) | 0.00107***<br>(0.000211)  |
| Firm size                          | 0.0373***<br>(0.0114)    | 0.0265***<br>(0.00797)    |
| Firm-specific risk (beta)          | 0.0526***<br>(0.0189)    | 0.0916***<br>(0.00884)    |
| Foreign listing                    | 0.0477<br>(0.0708)       | 0.0345***<br>(0.00175)    |
| R&D                                | 0.576***<br>(0.0648)     | 0.565***<br>(0.123)       |
| Sales growth                       | 0.316***<br>(0.0676)     | 0.392***<br>(0.0652)      |
| Constant                           | -0.24<br>(0.17)          | -0.14<br>(0.118)          |
| Observations                       | 240                      | 230                       |
| Number of firms                    | 60                       | 60                        |
| AR(1) test (p-values)              | 0.0721                   | 0.0012                    |
| AR(2) test (p-values)              | 0.1703                   | 0.3139                    |
| Sargan test                        | 47.939                   | 41.872                    |

This table shows results of two-step generalised method of moments estimation for 60 German and UK non-financial firms over the period 2007–2011. Dependent variable is the market-based measure of firm performance Tobin's Q. L.Tobin's Q indicates lagged values of the dependent variable Tobin's Q.