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# Article

Revisiting the role of audit and compensation 'committees' characteristics in the financial performance of the non-financial sector through the lens of the difference generalised method of moments

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*Suggested Citation:* Rahman, Habib Ur; Ali, Asif (2022) : Revisiting the role of audit and compensation 'committees' characteristics in the financial performance of the non-financial sector through the lens of the difference generalised method of moments, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 9, Iss. 1, pp. 1-20, https://doi.org/10.1080/23311975.2022.2085365

This Version is available at: https://hdl.handle.net/10419/288903

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# **Cogent Business & Management**

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oabm20

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To link to this article: https://doi.org/10.1080/23311975.2022.2085365





Received: 26 April 2022 Accepted: 30 May 2022

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Reviewing editor: Collins G. Ntim, Accounting, University of Southampton, Southampton, United Kingdom

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# ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

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Revisiting the role of audit and compensation 'committees' characteristics in the financial performance of the non-financial sector through the lens of the difference generalised method of moments

Habib Ur Rahman<sup>1</sup> and Asif Ali<sup>2</sup>\*

Abstract: This study aims to analyse the role of audit and compensation committees' characteristics in the financial performance of the non-financial sector of Pakistan. For this purpose, we collect data from 2009 to 2020 for 70 non-financial firms selected through stratified random sampling. Theoretically, the committees' characteristics and financial performance are jointly determined, creating some estimation issues in the panel setting. Therefore, the issue of endogeneity, the dynamic data-generating process and autocorrelation between the residuals needs attention to arrive at consistent and unbiased estimates. To overcome these estimation issues, we estimate the dynamic panel models using difference GMM under the Arellano-Bond framework to arrive at unbiased and consistent estimates. The estimates of this study reveal that the characteristics of the audit and compensation committees improve the overall financial performance of the non-financial sector of Pakistan. The specific estimates of the committee's characteristics reveal that the audit and compensation committee independence, audit and compensation committee meetings, and audit committee size enhance the financial performance of the non-financial sector of Pakistan. These findings strengthen the idea that the audit and compensation committee should be independent, which helps develop strong internal controls. Therefore, a key policy priority should be to plan for implementing some parts of the Sarbanes Oxley Act in Pakistan. Surprisingly, the audit committee's existence and the compensation committee head's independence deteriorate the financial performance of the non-financial sector of Pakistan. This study has raised important questions about the compensation committee chairman's independence that need further investigation.

# Subjects: Auditing; Financial Accounting; Corporate Governance

Keywords: Audit committee; compensation committee; committee Independence; financial performance; non-financial sector

# 1. Introduction

Over the last three decades, several major corporate scandals, such as Enron and Carillion, influenced the organisation's performance and compelled the regulatory authorities to pay greater





attention to corporate governance practices in order to increase investors' and shareholder's confidence with a greater focus on audit and compensation committee structure (Armstrong, Moustafa, and Elamer, 2021). The audit and compensation committee's structure and characteristics have received considerable critical attention in the recent past since corporate fraud can be avoided through devising effective monitoring and controlling processes for the management.<sup>1</sup> Recently, a substantial literature has grown up around the theme of audit and compensation committees. For instance, Khalid et al. (2020) recently revealed that the audit and compensation committees are critical to monitoring and controlling management's overall performance. Further, a better-governed organisation with low agency costs performs better because organisation committees build the mechanisms to achieve higher performance (Zhou et al., 2018).

The Pakistan Code of Corporate Governance (PCCG) 2012 emphasises that the listed firms in the equity market must have at least audit and compensation committees.<sup>2</sup> Further, PCGG 2012 provides guidelines on the composition and characteristics of the audit and compensation committees. It might be essential to note that these guidelines are consistent with many financial regulations, including The Sarbanes-Oxley Act of 2002. In particular, PCCG 2012 requires that the audit committee have three members. This code of conduct further reveals that at least one member must be an independent director, and the other comprises non-executive directors. Similarly, the compensation committee also has at least three members and constitutes a nonexecutive director and preferably an independent director. These characteristics of audit and compensation committees are expected to affect a firm's financial performance through various transmission mechanisms. Contemporaneously, the agency and stewardship theories provide contradictory theoretical mechanisms for a firm's financial performance. The theoretical implications of the audit and compensation committees in the presence of agency and stewardship theories are unclear. Therefore, the impact of audit and compensation committees on financial performance needs empirical investigation. This study attempts to provide empirical evidence of the effects of audit and compensation committees on the financial performance of a non-financial sector firm in Pakistan.

Existing research recognises the critical role played by the audit committee in improving the financial health of a sector. In particular, this strand of the literature reveals that monitoring financial reporting through an audit committee helps the organisation control manager's practices, which mitigates the agency problem (Algatamin, 2018; Forker, 1992). This transmission mechanism enables the audit committee to improve the financial reporting system. However, this performance improvement depends upon the effectiveness of an audit committee. The existence of an audit committee cannot guarantee the efficacy of an audit committee, and there must be specific characteristics for an audit committee to be influential. Recent developments in a nexus between the audit committee and financial performance have renewed interest in audit committee characteristics (Kallamu & Saat, 2015). Studies over the past two decades have provided important information on the audit committee characteristics. The key attributes of an audit committee can be listed as follows: the independence of board members, size of the committee, and committee meetings. These audit committee characteristics are expected to enhance the audit committee's effectiveness. One of these lines, James A. Hall (2019) reveals that the independent, diversified and competitive audit committee improves the internal controls. In a similar vein, Kallamu et al. (2015) demonstrate that audit committee effectiveness plays a more significant role in supervising the management to protect the interest of shareholders.

Similarly, more recent attention of researchers, professionals, and regulators has focused on the role of compensation committee characteristics on financial performance. There are several possible explanations for this attention. Existing literature, along with the industry practitioners and regulators, are more concerned about the effectiveness of compensation committees since these committees play a significant role in identifying and controlling the executive pay and setting standards for the appropriate remuneration (Sun et al., 2009). It might be essential to note that sub-committees handle specific board roles in this context. The compensation

committee is a crucial sub-committee of the board concerning the nature of the executive pay scheme (Main & Johnston, 2012). The absence of a compensation committee in a firm is an indicator of weak internal controls that provides an opportunity for the high-ups of the firms to award higher compensation to themselves. These higher compensations ultimately deteriorate the shareholder's wealth that different stakeholders do not favour. Therefore, an adequate compensation committee improves financial performance by developing better remuneration for executives and motivating managers to make value maximisation decisions (Catuogno et al., 2016). As mentioned above, in the context of an audit committee, the existence of a compensation committee cannot guarantee its effectiveness, and there must be specific characteristics of a compensation committee can be best investigated as the committee meeting and its level of independence.

The above discussion reveals that the audit committee and compensation committee characteristics are expected to affect the financial performance of a sector. Despite the importance of this nexus, there remains a lack of empirical evidence on the role of these committee's characteristics in financial performance. In particular, we could not find any substantial evidence on the topic from Pakistan. A cross-sectional study was conducted using the data for the year 2016. Due to the comprehensive data and empirical estimation constraints, existing empirical literature could not provide ample evidence on this topic (Chaudhry et al., 2020). Further, the existing empirical studies on the non-financial sector of Pakistan ignored the issue of endogeneity and the dynamic data-generating process (Al Farooque et al., 2020; Valenti et al., 2011; Wooldridge, 2002). In this setting, the estimates from the ordinary least square are biased (see, Aali-Bujari et al., 2017; Rahman et al., 2020a). Some studies used the fixed-effect models to estimate the impact of corporate governance practices on financial performance (Rahman et al., 2020a). Nonetheless, several published studies (Rahman et al., 2020b; Nickell, 1981) describe that the fixed effects in this setting are subject to Nickell bias, especially when N is larger than T. We overcome these estimation issues by estimating the dynamic panel models using difference GMM. And these estimation techniques enable us to arrive at unbiased and consistent estimates. In this setting, this paper analyses the impact of the audit and compensation committee's characteristics on the financial performance of the non-financial sector of Pakistan. Using panel data of 70 non-financial firms from 2009 to 2020, we estimate the dynamic panel models under the Arellano-Bond framework. The findings of this investigation complement those of earlier studies. This study makes several contributions to the current literature: (1) this study overcomes the estimation issues in the relevant empirical strand of literature; (2) this study provides a refined empirical framework to investigate the role of committees' characteristics on financial performance; and (3) this study provides valuable insights to the industry practitioners, researchers and regulators on the role of audit and compensation committees on the financial performance of a firm. The generalisability of these results is subject to certain limitations.

The rest of the paper is organised as follows. The next section of this paper synthesises the relevant literature and presents the testable hypothesis. The methodological approach is elaborated in the third section. We discuss the empirical results in the fourth section. This paper is concluded in the last section.

#### 2. Relevant literature and hypotheses development

#### 2.1. Background and theoretical literature

Various studies have assessed the efficacy of stewardship theory in the financial performance of companies since the stewardship theory states that agents (managers) are concerned about the shareholder's wealth and the company's overall performance. These theoretical foundations are in contrast to the agency theory, which reveals that managers are individualistic and self-centred (Kallamu & Saat, 2015). Several authors (Davis, Schoorman, & Donaldson, 1997; Hamdan, Sarea, & Reyad, 2013) have considered that the structure of the organising committee highly affects the firm performance. However, the efficacy of this nexus depends upon the fact that executives have

the authority to decide. This view is supported by Kallamu and Saat (2015), who write that the audit committee assists the board of directors in performing its role concerning accounting and finance functions. In terms of a concept, the audit committee concept varies according to the roles, goals, and duties. Further on this interaction, there is a large number of published studies<sup>3</sup> that focus on the linkage between the audit committee characteristics, including (1) audit committee existence, (2) audit committee independence, (3) audit committee size, and (4) audit committee meeting and the organisational performance. Section 2.1 synthesises the relevant literature on the nexus between these audit committee characteristics and a firm's financial performance.

Different theories exist in the literature regarding corporate governance and firm performance. Most recent attention has focused on the agency theory and stewardship theory to explain the association between the organisational committees and the organisation's performance. Firstly, the agency theory plays a vital role in defining the roles of the principal and the agents. Several studies reveal that principals and agents mainly focus on their personal interests and ignore each other's interests.<sup>4</sup> Due to the separation of ownership, managers have the liberty to accomplish their interests, which neglects the purpose of maximising the principal's resources (Davis, 1991; Muth and Donaldson, 1998)Several lines of evidence suggest that efficient and effective audit committees are needed to resolve the agency problem. Several authors have considered the effects of an audit committee on the financial performance if this committee help in resolving the agency's problems. Along these lines, Rahmat et al. (2009) reveal that these committees improve the firm performance.

#### 2.2. Empirical literature and hypotheses development

Section 2.2.1 and 2.2.2 synthesise the relevant literature on the nexus between these audit committee characteristics, compensation committee characteristics and a firm's financial performance.

#### 2.2.1. The audit committee characteristics and financial performance

A broader perspective has been adopted by Fama and Jensen (1983). They argue that the effective and independent audit committee enables the higher management to protect the interest of shareholders to maximise wealth. The literature on the independent audit committees has highlighted several related transmission mechanisms through which the audit committees affect the performance of a business (also see, M. M. Rahman et al., 2019). We classify these transmission mechanisms into three types: (1) enhancing the compliance mechanism (Mangena et al., 2011), (2) performing the monitoring role effectively (Yatim, 2009), and strengthening the informativeness (Woidtke & Yeh, 2013). Another significant aspect is that the independence of the audit committee affects the company's share price and share performance (also see, Kyere & Ausloos, 2021). To better understand the mechanisms of the independence of the audit committee and its effects, Rahmat et al. (2009) reveal that the composition of the audit committee matters in determining the independence of the audit committee. In particular, Rahmat et al. (2009) argue that a committee with a more executive director is considered less independent than a committee with a more non-executive director. In a similar vein, Klein (2002) reveals that audit committee independence enhances the liberty of management and committee size. The study by Ali and Meah (2021) stated that audit committee independence is enhanced when the corporate board is larger, and a higher number of independent directors are served on the corporate board. It is now well established from a variety of studies that the independent audit committee enhances financial performance by improving the audit quality Kallamu and Saat (2015) and reducing agency problems (Yeh et al., 2011; Chan & Li, 2008; Algatamin, 2018).

There is some evidence to suggest that the audit committee size is associated with the effective monitoring of the top management activities (Kallamu & Saat, 2015). Several authors have reported the effect of audit committee size on a business's financial performance (Alqatamin, 2018; Mohammed, 2018; Dakhlallh et al.,2020; Chan & Li, 2008). It is now well

established from various studies that the audit committee size is irrelevant in the absence of activeness of the committee. However, more recent attention has focused on the gauges of the audit committee's activeness. Along these lines, Syofyan, Septiari, Dwita, and Rahmi (2021) illustrate that activeness of the audit committees depends on the frequency of audit committee meetings. Along these lines, a large and growing body of literature (Collier, 1993; McMullen & Raghunandan, 1996; Menon & Williams, 1994) has focused on meeting frequency. This strand of the literature suggests that frequent audit committee meetings (1) effectively monitor the financial activities of a firm; (2) examine the effectiveness of various committees, and (3) get insights into the financial performance (Al-Matari Al-Swidi , Fadzil, and Al-Matari 2013; Alqatamin, 2018). In view of all that has been mentioned so far, one may suppose that the audit committees' characteristics, including the audit committee frequency of meetings, affect the financial performances of a firm. Taken together, this discussion leads us to construct the following testable hypotheses:

Testable Hypothesis I: The audit committee's existence has a significant effect on the financial performance of the non-financial sector.

Testable Hypothesis II: The audit committee's independence has a significant effect on the financial performance of the non-financial sector.

Testable Hypothesis III: The audit committee size has a significant effect on the financial performance of the non-financial sector.

Testable Hypothesis IV: The audit committee's frequency of meetings has a significant effect on the financial performance of the non-financial sector.

Turning now to the compensation committee, Section 2.2 synthesises the relevant literature on the nexus between the compensation committee characteristics and a firm's financial performance.

#### 2.2.2. The compensation committee characteristics and financial performance

Several authors have recognised that the compensation committee can play a significant role in mitigating the differences between management and ownership, ultimately increasing firm performance (Tosi & Mejia, 1994; Kaplan, 1994)Therefore, Tao and Hutchinson (2013) stated that it is vital for the organisation to have a compensation committee with an independent director to reduce information asymmetry. Previous research has established that a high-quality independent compensation committee enhances the financial performance of a firm through (1) strengthening governance (Sun et al., 2009), (2) enhancing the board effectiveness (Liao & Hsu, 2012) and (3) compelling the board to become active (Vafeas, 1999). Many published studies (R. C. Anderson & Bizjak, 2003; Hsu & Petchsakulwong, 2010; Jackling & Johl, 2009; Nelson et al., 2010) focus on the frequency of compensation committee meetings. In particular, these studies suggest that the firm performance and success of the board depends on the frequency of compensation committee meetings. Given all that has been mentioned so far, one may further suppose that the compensation committees affect the financial performances. The studies presented thus far enable us to construct the following testable hypotheses.

Taken together, this discussion leads us to construct the following testable hypotheses:

Testable Hypothesis V: The compensation committee meetings have a significant effect on the financial performance of the non-financial sector.

Testable Hypothesis VI: The compensation committee chairperson's independence has a significant effect on the financial performance of the non-financial sector.

Testable Hypothesis VII: The ratio of non-executive directors to total directors available in the compensation committee has a significant effect on the financial performance of the non-financial sector.

The evidence of these empirical conjectures makes several contributions to the current literature. The following section presents the methodological framework of this study.

#### 3. Research design

We present the methodological approach by categorising into (1) data and relevant discussion, (2) variable construction, (3) model, and (4) empirical strategy.

#### 3.1. Data and relevant discussion

Using a stratified random sampling technique, we selected 70 non-financial companies listed in the Pakistan equity market. Table 1 presents the details of stratified random sampling, which further reveals that the companies chosen represent the non-financial sector of Pakistan.<sup>5</sup> Due to a distinct capital structure, we excluded the financial sector from this empirical investigation and excluded those non-financial firms which did not provide complete information on variables used in this study. In other words, firms are selected based on the availability of financial data (Younas, UdDin, Awan, and Khan, 2021).

The annual data from 2009 to 2020 were collected from these selected companies using four sources: (1) annual reports of the companies, (2) the Website of the Pakistan equity market, (3) business recorder, and (4) financial statement analysis report. In this setting, we use panel data that have several advantages over the pure time-series and cross-sectional data since the panel data contains (1) more information, (2) more variability, and (3) more efficiency. Section 3.2 presents the variable construction.

#### 3.2. Variables construction

In this investigation, the aim is to analyse the effect of audit and compensation committees' characteristics on the financial performance of the non-financial sector of Pakistan. For this purpose, the dependent variable is financial performance. Existing empirical literature measuring financial performance has utilised three proxies: (1) Return on Asset (ROA), (2) Return on Equity (ROE), and (3) Earning per Share (EPS).<sup>6</sup> Following the existing empirical literature, we use these three proxies to analyse the effect of audit and compensation committees on the financial performance of the non-financial sector. Turning now to the explanatory variables, we use four characteristics of the audit committee and three characteristics of the compensation committee as the independent variables (see sections 2.1 and 2.2). All the audit committee characteristics used in this study are consistent with the previous studies (Muhammad et al., 2016; Al-Matar et al., 2013; Alzeban, 2019; Krishnan, 2005; Dakhlallh et al., 2020). The first audit committee characteristic is the existence of the audit committee, which is measured as one if an organisation has an audit committee; otherwise, zero. The second audit committee characteristic is audit committee independence which is the number of non-executive members serving on the audit committee. The third audit committee characteristic is the audit committee meeting, measured as the total number of meetings held in the financial year. The fourth characteristic of the audit committee is the audit committee size that is the total number of members constituting the audit committee

Another significant aspect of the variable construction is the compensation committee characteristics. As mentioned above, we use three characteristics of the compensation committee. All the compensation committee characteristics used in this study are consistent with the previous studies (Usman, Akhter, & Akhtar, 2015; Kanapathippillai et al., 2019; Tao & Hutchinson, 2013). The first characteristic of the compensation committee is the compensation committee meeting which

Table 1. Sample section from non-financial sector using stratified random sampling technique								
Sector	Popu	lation	SRS					
	Size	SW	Size	SW				
Cement	18.00	0.12	11.00	0.15				
Textile Composite	15.00	0.10	9.00	0.13				
Textile Spinning	15.00	0.10	8.00	0.11				
Chemical	12.00	0.08	6.00	0.08				
Pharmaceuticals	12.00	0.08	5.00	0.07				
Food and Personal Care Products	8.00	0.05	5.00	0.07				
Sugar and Allied Industries	8.00	0.05	3.00	0.04				
Cable and Electrical Goods	7.00	0.05	2.00	0.03				
Fertilizer	6.00	0.04	2.00	0.03				
Automobile Assembler	5.00	0.03	2.00	0.03				
Technology and Communication	5.00	0.03	2.00	0.03				
Transport	5.00	0.03	2.00	0.03				
Engineering	4.00	0.03	2.00	0.03				
Glass and Ceramics	4.00	0.03	2.00	0.03				
Oil and Gas Exploration Companies	4.00	0.03	3.00	0.04				
Oil and Gas Marketing Companies	4.00	0.03	1.00	0.01				
Paper and Board	4.00	0.03	1.00	0.01				
Power Generation and Distribution	4.00	0.03	1.00	0.01				
Refinery	4.00	0.03	2.00	0.03				
Automobile Parts and Accessories	3.00	0.02	2.00	0.03				
Total	147.00	1.00	71.00	1.00				

SRS and SW indicate the stratified random sampling and stratum weight, respectively. The sectors are sorted based on their size.

is measured as the total number of compensation committee meetings held during a financial year. The second characteristic of the compensation committee is the compensation committee chairperson's independence which is used as a dummy variable. This variable is measured as one when the compensation committee chairman is an independent director and zero otherwise. The third compensation characteristic is the independence of the compensation committee, which is used as the ratio of non-executive directors to total members of the compensation committee members. What follows is the discussion of the control variables. Following existing empirical literature (Buallay et al., 2017; Sheikh et al., 2013), we use three control variables, including (1) the size of the firm, (2) the age of the firm, and (3) leverage. These control variables are measured as follows: (1) the size of a firm is calculated as the natural log of total assets, (2) firm age is calculated as the number of years since the company is established, and (3) leverage is the ratio of total debt to equity.

#### 3.3. Model

We model the relationship between the audit and compensation committee characteristics and the financial performance of the non-financial performance sector in Pakistan. Following existing empirical literature (Al Farooque et al., 2020; Weir, 2010), we follow the following models to investigate the effect of audit committee characteristics on financial performance.

$$\mathsf{ROA}_{it} = \alpha_0 + \alpha_1 \mathsf{ACX}_{it} + \alpha_2 \mathsf{ACI}_{it} + \alpha_3 \mathsf{ACM}_{it} + \alpha_4 \mathsf{ACS}_{it} + \alpha_5 \mathsf{FSZ}_{it} + \alpha_6 \mathsf{FAG}_{it} + \alpha_7 \mathsf{LEV}_{it} + \varepsilon_{it}$$
(3.3.1)

$$ROE_{it} = \beta_0 + \beta_1 ACX_{it} + \beta_2 ACI_{it} + \beta_3 ACM_{it} + \beta_4 ACS_{it} + \beta_5 FSZ_{it} + \beta_6 FAG_{it} + \beta_7 LEX_{it} + \dot{O}_{it}$$
(3.3.2)

$$\mathsf{EPS}_{it} = \gamma_0 + \gamma_1 \mathsf{ACX}_{it} + \gamma_2 \mathsf{ACI}_{it} + \gamma_3 \mathsf{ACM}_{it} + \gamma_4 \mathsf{ACS}_{it} + \gamma_5 \mathsf{FSZ}_{it} + \gamma_6 \mathsf{FAG}_{it} + \gamma_7 \mathsf{LEX}_{it} + \mu_{it}$$
(3.3.3)

Similarly, we follow the following models to investigate the effect of compensation committee characteristics on financial performance.

$$\mathsf{ROA}_{it} = \delta_0 + \delta_1 \mathsf{CCM}_{it} + \delta_2 \mathsf{CCI}_{-1}_{it} + \delta_3 \mathsf{CCI}_{-2}_{it} + \delta_4 \mathsf{FSZ}_{it} + \delta_5 \mathsf{FAG}_{it} + \delta_6 \mathsf{LEV}_{it} + \pi_{it}$$
(3.3.4)

$$\mathsf{ROE}_{it} = \varphi_0 + \beta_1 \mathsf{CCM}_{it} + \beta_2 \mathsf{CCI}_{1it} + \beta_3 \mathsf{CCI}_{2it} + \beta_4 \mathsf{FSZ}_{it} + \beta_5 \mathsf{FAG}_{it} + \beta_6 \mathsf{LEX}_{it} + \tau_{it}$$
(3.3.5)

$$\mathsf{EPS}_{it} = \omega_0 + \gamma_1 \mathsf{CCM}_{it} + \gamma_2 \mathsf{CCI}_{-1}_{it} + \gamma_3 \mathsf{CCI}_{-2}_{it} + \gamma_4 \mathsf{FSZ}_{it} + \gamma_5 \mathsf{FAG}_{it} + \gamma_6 \mathsf{LEX}_{it} + \sigma_{it}$$
(3.3.6)

Where ROA, AOE, EPS, ACX, ACI, ACM, ACS, CCM, CCI\_1, CCI\_2, FSZ, FAG, and LEV are the return on assets, the return on equity, the earning per share, the audit committee existence, the audit committee independence, the audit committee frequency of meetings, the audit committee size, the compensation committee meetings, the compensation committee independence one, the compensation committee independence two, firm age, firm size, and leverage, respectively. The compensation committee independence one is the compensation committee independence one is the compensation committee independence. The compensation committee independence as a ratio of non-executive directors to the total number of directors in the compensation committee.<sup>7</sup> The empirical strategy to estimate Equations 3.3.1 to 3.3.3 is given in the next section.

#### 3.4. Empirical strategy

Theoretically, the variables on both sides of the models (Equations 3.3.1 to 3.3.6) are jointly determined (Al Farooque et al., 2020). Therefore, it is highly likely that the ACX, ACI, ACM, and ACS are correlated with the error terms of Equations 3.3.1 to 3.3.6. This correlation creates an issue of endogeneity (see, Wooldridge, 2002). This framework must note that the audit and compensation committees' characteristics may also affect a firm's financial performance. Many published studies (Al Farooque et al., 2020; Valenti et al., 2011) describe the firm performance and the committee's (audit and compensation) characteristics as endogenous issues. Furthermore, some additional estimation issues can be identified in Equations 3.3.1 to 3.3.6. The dynamic datagenerating process and autocorrelation between the residuals of all three models (Equations 3.3.1 to 3.3.6) need attention to arrive at consistent and unbiased estimates. In this setting, the estimates from the ordinary least square are biased (see, Aali-Bujari et al., 2017). Some studies used the fixed-effect models to estimate the impact of corporate governance practices on financial performance (Rahman et al., 2020a; Khan, Hussain, Rehman, & Maqbool, 2019)

Nonetheless, several published studies (e.g., Rahman et al., 2020b; Nickell, 2019) describe that the fixed effects in this setting are subject to Nickell bias, especially when N is larger than T. In our case, the N is larger than T, and the fixed effects should not be used to arrive at unbiased estimates. Further, there are some difficulties in the one-way fixed effects estimates. For instance, the regressors and the residuals are expected to be correlated during the demeaning process (Nickell, 2019). Existing literature has provided a valuable solution for these estimation issues to arrive at unbiased and consistent estimates. Among many, Thiodor Wilber Anderson and Hsiao (1981) suggest using the lags

of explained variables as instruments considering that the lags of explained are not correlated with residuals. Another strand of the literature reveals that some exogenous variables can work well as the instrument variables (see, Dang & Van, 2019; Rahman et al., 2020b; Song et al., 2019). Following these suggestions, the above models (Equations 3.3.1 to 3.3.6) are modified as the dynamic panel model by adding the lagged dependent variables. For these models, Cameron and Trivedi (2010) suggest that the residuals of the dynamic panel models estimated under the Arellano Bond framework should be serially uncorrelated. In Chapter 9, Cameron and Trivedi (2010) provide an intensive discussion on these estimation techniques and strategies. Following these guidelines, we estimate the dynamic panel models using difference Generalised Methods of Moments (GMM) (Arellano & Bond, 1991) to arrive at unbiased and consistent estimates.

The stationarity issue in the aggregated time series was initially pointed out by (Nelson & Plosser, 1982). Later, many published studies (Chang et al., 2011; Nelson & Plosser, 1982; Olaniyi, 2019; Olaniyi et al., 2017) describe the stationarity of time series data becomes the necessary procedure for any economic and financial analysis. In particular, stationarity testing has become a cornerstone of modern time series analysis. However, the lack of statistical power due to the small sample is one of the critical drawbacks of the univariate unit root tests. Data from several studies suggest that most economic data is collected for a short time period. However, it is observed over several cross-sections. The multivariate unit root improves the statistical power over its univariate counterparts in this setting. The recent empirical literature reveals that the appropriateness of the estimation techniques for the dynamic panel models should be ensured by testing the stationarity properties of the variables. In particular, Chang et al. (2011) stated that the unit root tests are required to estimate the dynamic panel model, especially when T is less than N (Buck et al., 2008). Further, we should ensure that our variables should be integrated of order one since the first-difference GMM only take care of this level of integration. The stationarity testing is also essential to avoid estimating spurious regressions. Before estimating these models, we ensure the stationarity of the data. Further, we ensure that none of the variables is integrated into order two.

Under the Arellano Bond framework, we use difference transformation to the specification of the dynamic panel models (Equations 3.3.1 to 3.3.6) to remove cross-sectional fixed effects. In this transformation, each variable is used in the first difference in the regression. The transformation innovations follow an integrated MA (1) process if the innovations are independent and identically distributed. The alternative transformation is the orthogonal deviation with the property that the transformation follows independent and identically distributed if the innovations are independent and identically distributed. For the GMM level instruments, we use the Arellano-Bond type instruments with two lags. In this setting, we estimate the dynamic panel data models by GMM using: (1) 2-step (update weight once), (2) white period GMM as GMM weighting matrix, and (3) robust standard errors (white period weights from final iteration).

The standard error used to estimate the test statistics are the standard Arellano-Bond 2-step estimator standard errors. The consistency of the estimates is tested by applying specification tests. More specifically, one of the key assumptions of Arellano-Bond results is that the errors  $[\varepsilon_{it}, \dot{o}_{it}, \mu_{it}, \pi_{it}, \tau_{it}, \sigma_{it}]$  should be serially uncorrelated, and these assumptions are testable. In particular, the errors  $[\varepsilon_{it}, \dot{o}_{it}, \mu_{it}, \pi_{it}, \tau_{it}, \sigma_{it}]$  in Equations 3.3.1 to 3.3.6 are serially uncorrelated under two conditions. First, the  $[\Delta \varepsilon_{it}, \Delta \dot{o}_{it}, \Delta \mu_{it}, \Delta \tau_{it}, \Delta \sigma_{it}]$  are correlated with  $[\Delta \varepsilon_{i,t-1}, \Delta \dot{o}_{i,t-1}, \Delta \pi_{i,t-1}, \Delta \tau_{i,t-1}, \Delta \sigma_{i,t-1}]$ ; however, the  $[\Delta \varepsilon_{it}, \Delta \dot{o}_{it}, \Delta \mu_{it}, \Delta \pi_{it}, \Delta \tau_{it}, \Delta \sigma_{it}]$  are not correlated with  $[\Delta \varepsilon_{i,t-k}, \Delta \dot{o}_{i,t-k}, \Delta \mu_{i,t-k}, \Delta \tau_{i,t-k}, \Delta \sigma_{i,t-k}]$  for  $k \geq 2$ . The null hypotheses for the Arellano-Bond test for zero autocorrelation in the first differenced errors are as follows.

$$Cov(\Delta \varepsilon_{it}, \Delta \varepsilon_{i,t-k}) = 0$$
 for  $k = 1$  and 2. (3.4.01)

$$Cov(\Delta \dot{o}_{i,t}, \Delta \dot{o}_{i,t-k}) = 0 \text{ for } k = 1 \text{ and } 2.$$
(3.4.02)

$$\mathsf{Cov}(\Delta\mu_{it}, \Delta\mu\varepsilon_{i,t-k}) = 0 \text{ for } k = 1 \text{ and } 2. \tag{3.4.03}$$

 $Cov(\Delta \pi_{it}, \Delta \pi_{i,t-k}) = 0$  for k = 1 and 2. (3.4.04)

$$Cov(\Delta \tau_{it}, \Delta \tau_{i,t-k}) = 0 \text{ for } k = 1 \text{ and } 2.$$
(3.4.05)

$$\operatorname{Cov}(\Delta\sigma_{it}, \Delta\sigma_{i,t-k}) = 0 \text{ for } k = 1 \text{ and } 2.$$
(3.4.06)

We expect the above null hypotheses to be rejected at the first order but not at the higher level if the errors in the above equations are serially uncorrelated. The next section presents the empirical results and the relevant discussion.

#### 4. Empirical results and discussion

#### 4.1. Descriptive statistics

Table A1 (see Appendix 1) presents the descriptive statistics of the variables used in this study. These variables can be classified into (1) financial performance indicators, (2) audit committee characteristics, and (3) compensation committee characteristics. This table is quite revealing in several ways. The descriptive statistics of the financial performance indicators reveal that the return on assets, the return on equity and the earnings per share of the non-financial sector are 6.72 per cent, 3.68 per cent and 5.90, respectively. The most striking result to emerge from these values is that the return on assets is very consistent between the selected companies of the non-financial sector since the standard deviation between the companies is substantially low (SD = 0.07) as compared to the overall standard deviation of 0.24. The descriptive statistics of the audit committee independence reveals that 62.02 per cent of the members serving on the audit committee are non-executive. The rest of the data relating to the audit committee characteristics reveals that every firm holds four meetings on average.

Interestingly, Pakistan National Shipping Corporation Limited conducted 11 and 12 meetings in 2013 and 2017. More variation in the audit committee meetings is observed within time (M = 4.29; SD = 0.63) as compared to the between companies (M = 4.29; SD = 0.50). However, the number of compensation committee meetings is only 28.17 per cent of the audit committee meetings. On average, the firms of non-financial firms are only holding 1.21 compensation committee meetings per year. A higher variation is observed over time than the variation between the firms in terms of variation. We could not find any abnormality in the summary statistics of the rest of the variables, including the control variables. The following section presents the results of the panel unit root test.

#### 4.2. Panel unit root test

Table A2 (see Appendix 1) presents the results of five panel unit root tests, including (1) Levin, Lin & Chu [LLC], (2) Breitung t-stat [BRT], (3) Im, Pesaran and Shin W-stat [IMS], (4) ADF—Fisher Chisquare [ADF], and (5) PP—Fisher Chi-square [PPS]. Theoretically, these panel unit root tests are simply the unit root tests of the multiple series that are applied to the panel data structure. It might be important to mention that LLC and BRT assume that cross-sectional units have the same unit root process, while IMS, ADF, and PPS assume that cross-sectional units have the individual unit root process. Furthermore, the Schwarz information criterion determines the best lag length for the unit root test. The most striking result from the data is that all the variables are stationary at a level at least using one criterion. In particular, the results of Levin, Lin & Chu reveal that all the variables are stationary at level. These findings suggest that our estimation of the dynamic panel model is free from all the issues discussed in Section 3.4 (Empirical Strategy). The nest section presents the difference-GMM estimates of the equation 3.3.1 to 3.3.6.

#### 4.3. Audit committee characteristics and financial performance

The present study was designed to determine the effect of the audit and compensation committees' characteristics on the financial performance of the non-financial sector of Pakistan. Table 2 presents the difference GMM estimates of equations 3.3.1 to 3.3.3. In particular, this table presents the results of the impact of audit committee characteristics on the financial performance of the non-financial sector of Pakistan.

The results of this study indicate that the audit committee's existence has a negative and significant effect on two of the indicators of the firm's performance. These results align with Alley et al. (2016). A possible explanation for this might be that the audit committee performs duplicate board duties, which can not be helpful in order to mitigate the agency problem. These results are slightly different for the case of return on equity. In this case, the audit committee's existence has a negative and insignificant effect on the return on equity. This result may be explained by an outside member occupying the audit committee. This finding broadly supports the work of Kajola (2008). Prior studies have noted the importance of an independent audit committee for the overall performance of a firm. The most prominent finding from the analysis is that the audit committee's independence has a positive and significant effect on firm performance. It seems possible that these results are since an independent audit committee reviews a firm's financial reporting effectively and efficiently. Further, an independent audit committee oversees the management activities, which in turn increases an organisation's performance. This finding was also reported by one strand of the empirical literature (Algatamin, 2018; Al Farooque et al., 2020; Tornyeva & Wereko, 2012). What is surprising is that the audit committee's independence deteriorates the earnings per share. However, these findings are consistent with some comparatively latest studies (Leung et al., 2013; Mohammed, 2018).

Turning now to the third audit committee characteristics, the audit committee meetings have a positive and statistically significant impact on the firm performance measured through the return on assets and earnings per share. These results align with those of previous studies (Musallam, 2020; However, the audit committee meeting has a negative and statistically significant effect on firm performance, which shows that the audit committee is not performing its role efficiently. Similar findings are observed in earlier studies (Al-Matari et al., 2013; M. M. Rahman et al., 2019). Consistent with the literature (Bansal and Sharma, (2016)this research reports the mixed results of audit committee meetings on firm performance. This combination of findings supports the conceptual premise that frequent audit committee meetings mitigate the information asymmetry and agency problems of an organisation and enhance the performance of corporate governance phenomena. Concerning the fourth testable hypothesis, it was found that audit committee size has a positive and statistically significant effect on the return on assets, and the Resource Dependency Theory underscores these results. The findings express that the audit committee size efficiently performs its monitoring role since a large size committee has more knowledge and diverse skills to resolve the finance and accounting issue. This investigation's yields were higher than those of other studies (Al Farooque et al., 2020; Musallam, 2020). The results of the return on equity are somewhat counterintuitive. In particular, the audit committee size is negatively associated with the firm performance. However, similar results are reported in the existing empirical literature (Bozec, 2005). The following section presents the results and the relevant discussion on the effect of compensation committee characteristics on the financial performance of the non-financial sector of Pakistan.

#### 4.4. Compensation committee characteristics and financial performance

Table 3 presents the effect of compensation committee characteristics on financial performance. In particular, the results of equations 3.3.4 to 3.3.6 are reported in Table 2. The estimates of difference GMM reveal that the compensation committee meeting has a positive and significant effect on a firm's financial performance when financial performance is measured through the return on assets and earnings per share. This result may be explained by the fact that meeting frequency provides the board more time to review the management process, which increases the company's performance. These results corroborate the findings of a great deal of the previous work by Hsu and Petchsakulwong (2010). Similarly, the compensation committee's independence

Table 2. Impact of audit committee characteristics on the financial performance							
Variable	ROA	ROE	EPS				
	Equation 3.3.1	Equation 3.3.2	Equation 3.3.3				
ROA (-1)	0.1223***						
	64.1438						
ROE (-1)		0.3255***					
		15.7924					
EPS (-1)			0.5486***				
			119.2498				
ACX	-0.0445***	-0.015672	-0.0436***				
	-38.1947	-0.4873	-4.5372				
ACI	0.0063***	0.0723***	-0.0202***				
	19.2781	10.8619	-11.8155				
ACM	0.0086***	-0.0316***	0.0134***				
	31.5566	-7.1079	13.9748				
ACS	0.0669***	-0.5269***	0.0016				
	53.3356	-8.5236	0.1491				
FAG	-0.1563***	-0.4563***	-0.2278***				
	-78.3084	-14.5745	-19.0591				
FSZ	0.04151***	0.1778***	0.1728***				
	156.7094	14.1015	59.9580				
LVG	0.0025***	0.00052	-0.0014***				
	288.8465	1.1308	-21.4752				
J-statistic	58.8270	60.6835	61.9178				
Prob(J-statistic)	0.2707	0.2186	0.1879				
Instrument rank	61.0000	61.0000	61.0000				
AR (1)							
m-Statistic	-2.5229	-3.9996	-2.5721				
Prob.	0.0116	0.0001	0.0101				
AR (2)							
m-Statistic	-0.4916	-1.0878	0.5550				
Prob.	0.6230	0.2767	0.5789				

ROA, ROE, EPS, ACX, ACI, ACM, ACS, FAG, FSZ and LVG indicate (1) return on assets, (2) return on equity, (3) earnings per share, (4) audit committee existence, (5) audit committee independence, (6) audit committee frequency of meetings, (7) audit committee size, (8) firm age, (9) firm size and (10) leverage. We use natural logs of ROA, ROE, EPS, FAG and FSZ. We use the first difference for the case of ACI and FSZ. \*\*\* reveals the level of significance at one per cent.

improves the return on assets and the earnings per share. A possible explanation for this might be that an independent director effectively performs their role to maximise the shareholder's wealth and achieve a better firm performance. These results agree with Zhu et al. (2009).

The independence of the compensation committee is also measured by considering the head of the committee. What is surprising is that the compensation committee head's independence has a negative and significant impact on the financial performance. The resource dependence theory supports these results, which indicates an inverse relationship between firm performance and board independence (Zhou et al., 2018). It is difficult to explain this result, but it might be related to mention the argument given in Rahmat et al. (2009). In particular, they argue that a committee with an executive director is considered less independent as compared to a committee with a more non-executive director.

In terms of the control variables, this study used three control variables, firm size, firm age, and leverage, for this empirical investigation. A closer inspection of the table reveals that a firm's age has a significant negative impact on firm performance, which shows that newly established perform better than a firm with a longer age. The finding is consistent with the study of Arora and Sharma (2016). Turning now to the second control variable, the firm size has a positive and significant effect on financial performance. A possible explanation for this might be that large-size stocks can benefit from the economies of scale that significantly affect a firm's performance. These findings are supported by the existing empirical studies (Ahmed & Hamdan, 2015; Malik & Bukhari, 2014). The single most striking observation to emerge from the difference GMM estimates of the control variables is that the leverage has a positive and negative significant effect on the return on assets and earnings per share. There are several possible explanations for this result. The signalling theory suggests that leverage has a positive influence on firm performance. Conversely, the agency theory posits that leverage has an inverse impact on financial performance (Ibhagui & Olokoyo, 2018). These results agree with the existing studies (Malik & Bukhari, 2014).

Table 3. Impact of compensation committee's characteristics on the financial performance							
Variable	ROA	ROE	EPS				
	Equation 3.3.4	Equation 3.3.5	Equation 3.3.6				
ROA (-1)	0.0832***						
	17.8496						
ROE (-1)		0.4463***					
		19.4409					
EPS (-1)			0.5228***				
			63.4662				
ССМ	0.0165***	0.006078	0.0244***				
	116.9016	1.6553	13.9127				
CCI_1	0.0135***	0.006016	0.0196***				
	11.7644	0.6644	4.7742				
CCI_2	-0.0133***	-0.0120***	-0.0217***				
	-40.2710	-2.7593	-11.8287				
FAG	-0.1830***	-0.5505***	-0.2463***				
	-54.9720	-19.7624	-13.4491				
FSZ	0.0697***	0.1801***	0.1738***				
	45.6780	11.7546	24.3632				
LVG	0.0027***	-0.000463	-0.00140***				
	124.4828	-0.7144	-25.1934				
J-statistic	59.6246	58.1719	59.3144				
Prob(J-statistic)	0.1212	0.1998	0.1723				
Instrument rank	55.0000	57.0000	57.0000				
AR (1)							
m-Statistic	-3.3927	-3.6681	-2.6129				
Prob.	0.0007	0.0002	0.0090				
AR (2)							
m-Statistic	0.3472	-0.6390	0.4962				
Prob.	0.7285	0.5228	0.6198				

ROA, ROE, EPS, ACX, ACI, ACM, ACS, FAG, FSZ and LVG indicate (1) return on assets, (2) return on equity, (3) earnings per share, (4) audit committee existence, (5) audit committee independence, (6) audit committee frequency of meetings, (7) audit committee size, (8) firm age, (9) firm size and (10) leverage. We use natural logs of ROA, ROE, EPS, FAG and FSZ. We use the first difference for the case of ACI and FSZ. \*\*\* reveals the level of significance at one per cent.

The last section of Tables 2 and 3 presents the estimates of the diagnostic tests. J-statistic reported above is the Sargan statistics, and it can be seen from the last section of Table 2 that the instrument rank of 61 is greater than the estimated coefficients in all cases. Further, the estimates for the Arellano-Bond test for zero autocorrelation in the first differenced errors are reported at the end of Tables 2 and 3. These estimates reveal that the null hypothesis is rejected at the first level but not at the higher level. These results reveal that the errors in Equations 3.3.1 to 3.3.6 are serially uncorrelated.

#### 5. Summary and conclusion

The purpose of the current study was to determine the role of audit and compensation committees' characteristics in the financial performance of the non-financial sector of Pakistan. We use stratified random sampling to select 70 firms from the non-financial sector and collect panel data from 2009 to 2020. The estimates of the dynamic panel models under the Arellano-Bond framework reveal that the characteristics of the audit and compensation committees improve the overall financial performance of the non-financial sector of Pakistan. More specifically, the results of this investigation show that the audit and compensation committee independence, audit and compensation committee meetings, and audit committee size enhances the financial performance of the non-financial sector of Pakistan. One of the more significant findings to emerge from this study is that the audit committee's existence and the compensation committee head's independence deteriorates the financial performance of the nonfinancial sector of Pakistan. These findings raise intriguing questions regarding the nature and extent of the existing composition of the committees. These findings further emphasise the restructuring of committees, enhancing their effectiveness and contributing to overall performance. Overall, this study strengthens the idea that the audit and compensation committee should be independent, which helps develop strong internal controls. Therefore, a key policy priority should be to plan for implementing some parts of the Sarbanes Oxley Act in Pakistan to strengthen the corporate governance mechanism and stock exchange practices. The findings of this investigation complement those of earlier studies. In particular, the regulatory bodies should ensure the implementation of the Pakistani Code of Corporate Governance (PCCG) to (1) improve corporate governance practices and (2) reduce the trust deficit among different stakeholders, including shareholders, employees and the business community. Further, the member's role with accounting and finance expertise should be precisely defined to execute the remuneration plan. Specifically, the designed remuneration plan should be in the best interest of all stakeholders. This study has raised important questions about the nature of the compensation committee chairman's independence, and this aspect needs further investigation.

#### Acknowledgements

We are grateful to Mr Muhammad Hanif for his assistance in the data collection.

#### Funding

The authors received no direct funding for this research.

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#### **Disclosure statement**

No potential competing interest was reported by the authors.

#### **Citation information**

Cite this article as: Revisiting the role of audit and compensation 'committees' characteristics in the financial performance of the non-financial sector through the lens of the difference generalised method of moments, Habib Ur Rahman & Asif Ali, *Cogent Business & Management* (2022), 9: 2085365.

#### Notes

- 1. See Chapter 3: Ethics, Frauds and Internal Controls of Hall (2019).
- 2. In 1970, the board was subdivided into a separate board of director committees such as audit committee and compensation committee (Lee et al., 2015). Conceptually, the audit committee consists of the members of a board of directors and the duty of these members is to assist auditors to ensure that these auditors stay independent of management (Arens et al., 2014).
- See, Agrawal and Knoeber (1996), Almarayeh et al. (2022), Dalton et al. (1998), and Haddad et al. (2021), and Rahmat et al. (2009).
- See, Waterman and Meier (1998) for the relevant discussion on the information advantage of the agents over principals.
- 5. The total population of the Pakistan equity market is 422 as of 23 March 2022.
- 6. ROA is the ratio of profit before tax to total asset, ROE is the ratio of net income to total equity and EPS is the ratio of net income to total outstanding shares. Further, see section 3.7 Financial Indicators of Rahman et al. (2021).
- 7. For further details on these variables, see Section 2.2 Variable Construction.

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## Appendix 1

Table A1. Descriptive statistics								
Variable		Mean	Std. dev.	Min	Max	Observations		
ROA	Overall	6.7248	0.2402	0.0000	7.3900	N = 840		
	Between		0.0660	6.2150	6.7808	n = 70		
	Within		0.2311	0.5098	7.4598	T = 12		
ROE	Overall	3.6760	0.3228	0.0000	4.4200	N = 840		
	Between		0.2293	2.6800	4.1625	n = 70		
	Within		0.2287	0.6252	4.3860	T = 12		
EPS	Overall	5.9034	0.2350	0.0000	6.9200	N = 840		
	Between		0.1114	5.3958	6.5550	n = 70		
	Within		0.2073	0.5075	6.4275	T = 12		
ACX	Overall	0.9988	0.0345	0.0000	1.0000	N = 840		
	Between		0.0100	0.9167	1.0000	n = 70		
	Within		0.0331	0.0821	1.0821	T = 12		
ACI	Overall	0.6202	0.5857	0.0000	4.0000	N = 840		
	Between		0.2829	0.0000	1.5833	n = 70		
	Within		0.5139	-0.9631	3.2869	T = 12		
ACS	Overall	1.2508	0.2220	0.6900	2.0800	N = 840		
	Between		0.1922	1.0658	1.7633	n = 70		
	Within		0.1133	0.7417	1.7317	T = 12		
ACM	Overall	4.2893	0.7998	0.0000	12.0000	N = 840		
	Between		0.4993	3.8333	7.1667	n = 70		
	Within		0.6274	0.2893	9.1226	T = 12		
ССМ	Overall	1.2083	1.5580	0.0000	14.0000	N = 840		
	Between		0.9905	0.2500	5.6667	n = 70		
	Within		1.2080	-4.4583	9.5417	T = 12		
CCI_1	Overall	0.2536	0.4353	0.0000	1.0000	N = 840		
	Between		0.1780	0.0000	0.7500	n = 70		
	Within		0.3978	-0.4964	1.0869	T = 12		
CCI_2	Overall	2.0655	1.4588	0.0000	6.0000	N = 840		
	Between		0.6945	1.1667	4.4167	n = 70		
	Within		1.2853	-2.3512	4.9821	T = 12		
FSZ	Overall	16.2830	1.5024	11.8100	20.4600	N = 840		
	Between		1.4423	13.1858	19.9108	n = 70		
	Within		0.4520	14.9072	18.7880	T = 12		
FAG	Overall	3.5512	0.6068	-1.2200	4.6500	N = 840		
	Between		0.5205	1.6742	4.5975	n = 70		
	Within		0.3175	0.6570	6.0370	T = 12		
LVG	Overall	1.1148	9.2232	-203.7600	80.0600	N = 840		
	Between		2.0045	-7.6042	10.6100	n = 70		
	Within		9.0057	-200.0202	70.5648	T = 12		

We use the natural log of ROA, ROE, EPS, FAG, FSZ and LVE.

Table A2. Panel unit root tests										
	At Level						At First Difference			
	LLC	BRT	IMS	ADF	PPS	LLC	BRT	IMS	ADF	PPS
ROE	-9.12	2.78	-2.79	210.05	295.27	-23.32	-1.26	-5.48	301.40	565.11
	0.00	1.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
ROA	-2.72	1.19	-2.13	196.26	342.84	-22.67	-2.13	-6.60	343.61	692.02
	0.00	0.88	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00
EPS	-6.00	4.76	-0.83	192.82	259.67	-13.30	3.14	-3.10	264.92	501.25
	0.00	1.00	0.20	0.00	0.00	0.00	1.00	0.00	0.00	0.00
ACI	-4.85	-5.18	3.22	53.87	56.83	-16.17	-8.61	-1.72	170.64	461.23
	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.04	0.01	0.00
ACM	-8.74	-1.33	-1.87	110.45	219.16	-11.73	-1.82	-3.20	128.33	323.43
	0.00	0.09	0.03	0.03	0.00	0.00	0.03	0.00	0.00	0.00
ACS	-11.66	-1.48	-1.34	91.44	120.25	-8.64	-2.90	-1.71	108.13	309.82
	0.00	0.07	0.09	0.11	0.00	0.00	0.00	0.04	0.00	0.00
ССМ	-7.20	-2.61	2.12	87.63	129.84	-13.96	-6.22	-3.26	239.19	701.49
	0.00	0.00	0.98	1.00	0.68	0.00	0.00	0.00	0.00	0.00
CCI_1	-6.43	-1.58	3.20	40.09	56.66	-8.17	3.77	-2.35	155.48	436.63
	0.00	0.06	1.00	1.00	1.00	0.00	1.00	0.01	0.00	0.00
CCI_2	-10.07	-2.53	2.77	75.02	61.42	-28.56	-11.58	-7.06	369.50	678.54
	0.00	0.01	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
FAG	-36.75	12.60	-572.77	1253.79	1254.00	-34.17	11.88	-367.89	1256.12	1256.35
	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
FSZ	-8.51	0.53	-0.21	140.03	150.62	-11.24	0.08	-0.57	167.71	359.48
	0.00	0.70	0.42	0.48	0.26	0.00	0.53	0.28	0.06	0.00
LVG	-30.31	0.37	-4.63	203.84	399.48	-11.12	-5.05	-3.75	260.16	888.53
	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LLC [1], BRT [2], IMS [3], ADF [4], PPS [5], ROA [6], ROE [7], EPS [8], ACI [9], ACM [10], ACS [11], CCM [12], CCI\_1 [13], CCI\_2 [14], FAG [15], FSZ [15] and LVG [16] indicate (1) Levin, Lin & Chu, (2) Breitung t-stat, Im, (3) Pesaran and Shin W-stat, (4) augmented Dickey-Fuller Fisher Chi-square, (5) Phillips-Perron Fisher Chi-square, (6) return on assets, (7) return on equity, (8) earnings per share, (9) audit committee independence, (10) audit committee frequency of meetings, (11) audit committee size, (12) compensation committee meetings, (13) compensation committee independence two, (15) firm age, (16) firm size and (17) leverage. We use natural logs of ROA, ROE, EPS, FAG and FSZ. We use the first difference for the case of ACI and FSZ. \*\*\* reveals the level of significance at one per cent.



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