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The Effect of Vice-Chancellor Characteristics and Internal Governance Mechanisms on Voluntary Disclosures in UK Higher Education Institutions

Mohamed H. Elmagrhi[1], Collins G. Ntim[2], Yan Wang[3•], Ahmed A. Elamer[4] and Richard Crossley[5]

[1]Hawkes Centre for Empirical Finance
Department of Accounting and Finance
School of Management
Swansea University
Swansea, UK

[2]Centre for Research in Accounting, Accountability and Governance
Department of Accounting
Southampton Business School
University of Southampton
Southampton, UK

[3]Department of Accounting and Finance
Nottingham Business School
Nottingham Trent University
Nottingham, UK

[4]Brunel Business School
Brunel University London
Middlesex, UK

[5]Department of Accounting and Finance
Leeds University Business School
University of Leeds
Leeds, UK

•Corresponding author:
Yan Wang, Nottingham Business School, Nottingham Trent University, Nottingham, NG11 8NS, UK.
Email: yan.wang@ntu.ac.uk

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ABSTRACT

This paper examines the extent to which UK higher education institutions (HEIs) voluntarily make governance disclosures, and investigates whether vice-chancellor characteristics and governing board mechanisms influence such voluntary governance disclosures. Using a sample of 117 UK HEIs over a 6-year period (i.e., 702 university-year observations), we find that the level of governance disclosures among HEIs in the UK is generally low, which is consistent with the findings of prior studies that examined general disclosure practices among HEIs. We also find that vice-chancellor characteristics and governing board mechanisms have significant impact on voluntary governance disclosures. Specifically, we find positive and significant association among vice-chancellor tenure, governing board independence, governing board meetings, the presence of a governance committee and voluntary governance disclosures. By contrast, we find that vice-chancellor age and governing board ethnic/gender diversity have negative association with the governance disclosures, whereas vice-chancellor gender, and education background have no association with the governance disclosures.

Keywords: Governance quality, Voluntary disclosure, Reforms, UK higher education institutions (HEIs)

1. Introduction

This study follows the guidance of Whetten (1989) and Reay and Whetten (2011) and seeks to answer the "what" question. Specifically, we investigate the extent to which UK HEIs voluntarily engage in governance disclosures in their annual reports, and consequently examine whether vice-chancellor characteristics and governing board mechanisms can explain observable differences in the extent of voluntary disclosure of such good governance practices.

Worldwide, there has been a number of changes in the higher education (HE) sector. Particularly, public funding is increasingly becoming tighter, and consequently, the sector is gradually moving away from public to private/hybrid sources of funding[1] (Du & Lapsley, 2019; Ntim, 2018). At the same time, competition for students, along with 'commodification', 'managerialism', and 'corporatisation' of education have significantly increased (Parker, 2011, 2013). Noticeably, these reforms and pressures have increased the need to demonstrate greater governance, accountability, transparency and value for money within the HE sector in general, but UK HE context in particular. For example, the UK has been at the forefront of developing a number of governance codes since 1995 for over 20 years (e.g., 1997 Dearing report; 2010 Browne Report; 2009, 2013, 2014, 2015 and 2018 Committee of University Chairs Guidelines – CUC). These codes have often aimed at enhancing governance, public accountability, and financial/risk management among UK HEIs.

Additionally, the 2007/08 global financial crisis and the implementation of the Browne report (2010) recommendations along with huge challenges brought about by the on-going COVID-19 global pandemic, which together has led to significant cuts in the HE budget, have further increased the need for greater transparency, good governance and accountability within

[1]According to Parker (2012), for instance, the UK government only contributed about 35% of the funding of HEIs in 2008/09. Similarly, and according to the Universities UK report, which was published in July 2016, the UK government contributed less than 20% of teaching income in 2014/15, whereas over 80% of the teaching income comes from tuition fees and other private grants. The report also reveals that the UK government funding to HEIs will decrease by £120m by 2019/20.

UK HE sector (Ntim, 2018). Despite the increasing importance of complying with good governance practices, however, no study has to-date investigated the levels of compliance with or disclosure of, the recommendations relating to good corporate governance practices in the annual reports of UK HEIs.

Theoretically, prior studies suggest that organisations' commitment to good organisational practices can be explained by their institutional actors (i.e., vice-chancellors and governing board) and contexts (Breakwell & Tytherleigh, 2008a; Gordon et al., 2002; Middlehurst, 2004; Ntim et al., 2017). Specifically, neo-institutional theorists (DiMaggio & Powell, 1983, 1991; Meyer & Rowan, 1977; Scott, 1987, 2014) suggest that institutional pressures (normative, memetic and coercive), which can facilitate and/or restrain the adoption of good organisational practices, are driven by two key reasons: efficiency and legitimation.

Briefly, the legitimisation perspective of neo-institutional theory suggests that coercive pressures (e.g., pressures from legal mandates and organisations that HEIs are dependent upon) can encourage HEIs to comply with good practices in order to improve their legitimacy and meet the cultural expectations of the broader society (Fischer et al., 2010; Lepori, 2016). Further, the efficiency perspective of neo-institutional theory suggests that normative, cognitive and coercive pressures can also force institutions (i.e., HEIs) to compete for crucial resources in order to maintain sustainable operations (Aguilera et al., 2007; Chen & Roberts, 2010). Thus, engaging in high levels of governance disclosures can improve HEIs legitimacy and operational efficiency by: (i) achieving congruence of a HEI's goals and norms with those of the larger society; (ii) increasing access to vital resources, including funds and donations; and (iii) reducing the economic, social, and political costs relating to investing in such practices.

Empirically, much of the existing governance disclosure literature have been conducted on profitable organisations (Barako et al., 2006; Beekes & Brown, 2006; Donnelly & Mulcahy,

2008; Elmagrhi et al., 2016; Gul et al., 2011; Katmon et al., 2019; Nalikka, 2009), which can arguably limit the generalisability of their findings to non-profit organisations. In the meantime, empirical studies examining issues relating to accountability, governance and transparency in the HE sector are not only limited (e.g., Banks & Nelson, 1994; Dixon & Coy, 2007; Gray & Haslam, 1990; Ntim et al., 2017; Soobaroyen et al., 2014, 2019), but also appear to suffer from several observable weaknesses.

First, existing studies have either focused largely on the effect of general institutional attributes (i.e., size and age) on voluntary disclosure or have mainly been descriptive with limited theoretical insights (Dixon & Coy, 2007; Coy et al., 2001; Nelson et al., 2003). Second, to the best of our knowledge, none of these existing studies has examined the extent of voluntary corporate governance disclosures in HEIs and their determinants. Third, and despite increasing empirical and theoretical suggestions that institutional decisions relating to disclosures, including governance ones, are mainly influenced by the structure of top management teams (Beekes & Brown, 2006), existing studies investigating the influence of internal governance structures on voluntary disclosures in HEIs are generally rare (Gordon et al., 2002; Ntim et al., 2017). Therefore, these weaknesses together, arguably, impairs the current knowledge of the extent to which governance structures of HEIs can influence their voluntary disclosure behaviour relating to governance practices.

Given the noticeable gaps in the previous literature, we seek to extend and contribute to the existing research in a number of ways. First, we contribute to the existing research by offering evidence for the first time on the disclosure levels of governance practices by UK HEIs, and this is done by constructing a comprehensive governance disclosure framework using various governance codes for UK HEIs (e.g., Committee of University Chairs - CUC, 2008, 2009, 2014; Committee of Scottish Chairs - CSC, 2013). This extends and improves the findings of past studies, which focused largely on offering descriptive accounts of general

voluntary disclosures in HEIs. Second, our research contributes to past HE studies by offering evidence on the extent to which internal governance structures, especially the vice-chancellor characteristics can influence the level of voluntary governance disclosures in the HE sector that is characterised by increased competition, financing constraints and governance/market reforms. Finally, this study extends and improves the findings of past studies by offering a six-year longitudinal evidence on the extent of voluntary governance disclosures and their antecedents in UK HEIs. This is a departure from much of the HE studies that have largely been descriptive/qualitative oriented (e.g., Gordon et al., 2002).

The remaining sections of this paper are organised as follows. The next section will provide a review of the relevant theoretical and empirical studies. Section 3 and 4 outline research design and discuss the empirical findings, respectively. A summary of the main findings, contributions, implications, limitations and suggestions for future research is presented in the final section.

2. Theoretical framework and hypotheses development

Prior studies (Aguilera et al., 2007; Chen & Roberts, 2010; Ntim & Soobaroyen, 2013) have successfully applied neo-institutional theoretical perspective to explain the diffusion of a number of good practices among profitable organisations, including the implementation of good international accounting, governance and CSR practices. However, this theory has hardly been employed in studies that have been conducted within non-for-profit organisations, especially HEIs, and this is principally relevant with regard to the rapid global diffusion of governance practices over the past decades (Ahrens & Khalifa, 2015; Damayanthi & Gooneratne, 2017; Leiter, 2005). This, arguably, impairs the current knowledge about the main institutional drivers of the adoption of good governance practices among HEIs[2].

[2]Unlike profitable organisations, HEIs are expected to fulfil multiple and mostly conflicting missions, often with high levels of heterogeneity in terms of stakeholders, inputs and outputs (Cave et al., 1989; Coy et al., 2001; Fischer et al., 2010), and this can impact differently on governance disclosure practices. However, the introduction of market/quasi-market oriented reforms in the HE sector, which have aimed at reducing costs and promoting

Parker (2011) and Taylor (2013) argue that new public management that reflects corporate-like institutional structures, management practices and accounting practices (Martin-Sardesai et al., 2017), the fast changes and numerous reforms have similarly resulted in a growing "corporatisation" and "commercialisation" of HEIs. Debatably, there is opportunity to expand our perception of the institutional antecedents and clarifications for the rapid proliferation of governance practices among HEIs (Soobaroyen et al., 2019). Our study, therefore, seeks to expand and employ the legitimisation and efficiency perspectives of neo-institutional theory to explain the impact of institutional actors (vice-chancellors – similar to college/university presidents/rectors in the US/rest of the world and governing board characteristics) on compliance/disclosure of good governance practices among UK HEIs.

We employ the legitimisation and efficiency perspectives of neo-institutional theory in this study due to the following reasons. First, traditional institutional theory only discusses the processes, procedures and structures of institutionalisation, but it does not provide clear classification of forces influencing the diffusion of good practices (Munir, 2019). In contrast, neo-institutional theory is much more explicit about the institutional forces (coercive, normative and mimetic pressures) and provides a clear explanation about why organisations tend to conform to good practices (Scott, 1987; Zattoni & Cuomo, 2008). According to Scott (1987, p. 498) "*Organisations conform because they are rewarded for doing so through increased legitimacy, resources and survival capabilities*".

student choice, has forced HEIs to arguably behave largely in a similar manner to that of large public corporations by paying greater attention to cost concerns, efficiency and revenue maximisation (Diamond, 2011; Du & Lapsley, 2019; Parker, 2013). In the UK, for example, the 2010 Browne Report recommendations led to three main changes: (i) removing the cap on tuition fees; (ii) removing restrictions on competition for, and recruitment of, students; and (iii) transferring government funding to individual students via the granting of student loans. Further, HEIs are increasingly becoming large and complex corporations with complex short- and long-term challenges (Gunn, 2018). For example, HEIs are expected to widen access by offering more opportunities to students from poor and disadvantaged backgrounds, as well as enhance their national (e.g., CUG and GUG league tables) and international (QS and THE rankings) reputation, through the provision of first-class education/teaching (TEF and NSS) and world-leading research (REF) (Bell & Brooks, 2019; Espeland & Sauder, 2016). All of these pressures have increased the need for HEIs worldwide in general, but in the UK in particular, to demonstrate greater good governance, transparency, accountability and value-for-money by complying with codes/guidelines of good governance practices.

Second, and based on the definition of Scott (1987), institutional theorists (DiMaggio & Powell, 1983, 1991; Meyer & Rowan, 1977; Scott, 1987, 2014) argue that there are two main reasons that can force organisations to commit to good practices which are; (i) instrumental (economic efficiency); and (ii) moral/relational (social legitimacy). Finally, and due to the multifaceted nature and outcomes of governance practices (Ntim & Soobaroyen, 2013; Zattoni & Cuomo, 2008), this has increased the need to employ both the legitimisation and efficiency perspectives of neo-institutional theory to better understand the main institutional drivers of voluntary governance disclosures.

From legitimisation perspective (Ashforth & Gibbs, 1990; Suchman, 1995), organisations need to demonstrate greater accountability, transparency and value for money to the larger community by integrating socially accepted and expected practices, norms and standards into their operations. In this case, institutional actors (vice-chancellors and governing boards) may apply greater pressure on their HEIs to commit to high levels of governance disclosure in order to sustain good relations with influential stakeholders (creditors/bondholders, students, funding or regulatory agencies/OFS, employers, unions and donors), and thus legitimise the operations/activities of their institutions.

In addition, the efficiency perspective of neo-institutional theory (Ntim & Soobaroyen, 2013; Pfeffer & Salancik, 1978) indicates that organisations may conform to coercive, normative and mimetic pressures, not only to legitimise their operations/activities, but also to gain competitive advantages and secure access to crucial resources (e.g., finance and business contacts). Consistent with this view, HE institutional actors (vice-chancellors and governing boards) may force their institutions to comply with, and disclose of, information relating to good governance practices in order to gain the support of powerful stakeholders (students, funding or regulatory agencies/OFS, employers, unions and donors) and secure access to different types of funding, particularly given the major challenges posed by the ongoing

COVID-19 global pandemic along with significant cuts of public funding over recent years. Additionally, committing to good governance practices can improve HEIs efficiency by minimising information asymmetry among different groups of stakeholders (Bendickson et al., 2016; Jensen & Meckling, 1976).

Therefore, and given that prior studies (Breakwell & Tytherleigh, 2008a; Gordon et al., 2002; Middlehurst, 2004; Ntim et al., 2017) suggest that institutional actors, such as vice-chancellors and governing boards, tend to have significant influence on strategic decisions made by their institutions, including those relating to committing to high levels of governance disclosures, our study has employed the legitimisation and efficiency perspectives of neo-institutional theory to explain the extent to which vice-chancellor characteristics (gender, discipline, age and tenure) and governance board mechanisms (the existence of a governance committee, ethnic and gender diversity of the governing board, governing board independence, and governing board meetings) can influence voluntary governance disclosures among UK HEIs.

2.1 Vice-chancellor characteristics and voluntary governance disclosures

In the UK, vice-chancellors (VCs) are the chief executives and senior managers of HEIs, and are responsible for making strategic decisions that improve the efficiency and effectiveness of their institutions, including those relating to engaging in voluntary compliance/disclosure of governance practices (Breakwell & Tytherleigh, 2008a; Middlehurst, 2004). This is similar to the role of college/university presidents or rectors in the US/rest of the world. It has been argued that the extent to which VCs can influence HEIs' strategic decisions will depend on their attributes, such as age, gender, academic discipline/specialism and tenure (Breakwell & Tytherleigh, 2008b, 2010; Ntim et al., 2017). We, therefore, examine the impact of four VC characteristics (age, gender, discipline and tenure) on voluntary governance disclosures in the current study. These four characteristics have been selected since they have been examined by

prior HE studies (Breakwell & Tytherleigh, 2008b, 2010; Ntim et al., 2017; Sánchez-Moreno et al., 2015), as well as they can be objectively captured/measured (Breakwell & Tytherleigh, 2008a, 2008b, 2010).

Theoretically and on the one hand, the efficiency view of neo-institutional theory (Breakwell & Tytherleigh, 2008b, 2010; Huang et al., 2012; Ntim et al., 2017) suggests that older and long-tenured directors tend to have greater experience, knowledge, skills and financial ability to deal with complex issues, and this consequently can facilitate compliance with, and disclosure of, governance practices. On the other hand, neo-institutional theory (legitimation view) indicates that young and short-tenured directors have higher motivation to strengthen the implementation of good governance practices in order to enhance/further develop their status in the employment markets than older and long-tenured directors (Brickley et al., 2010).

In terms of gender diversity, the legitimation view of neo-institutional theory suggests that HEIs may recruit female directors for symbolic reasons, and hence these directors may not be actively involved in making strategic decisions, including those relating to governance disclosures (Young, 2004). By contrast, and from neo-institutional efficiency perspective, HEIs may appoint female VCs to improve boardroom efficiency and independence by bringing diverse ideas, knowledge, views, perspectives and experiences to a board (Ntim et al., 2017), and this in turn can positively improve disclosure about governance practices. Further, and with respect to VCs educational background, the legitimation and efficiency views of neo-institutional theory (Breakwell & Tytherleigh, 2008a; Farnham & Jones, 1998) suggest that HEIs prefer to appoint generalist directors (VCs with social science background) because they often have greater knowledge, skills and experiences that help them to deal with complex issues, and this consequently can impact positively on governance disclosure practices.

Empirically, to the best of our knowledge, none of the past HE studies has examined the effect of vice-chancellor characteristics on voluntary governance disclosures, and therefore, offers a fertile opportunity to make original contributions to the literature. Most of the past empirical studies have been conducted on publicly traded organisations (Haniffa & Cooke, 2002; Lin et al., 2014; Ntim & Soobaroyen, 2013; Samaha et al., 2015). Few studies have been conducted on non-profitable organisations and examined the impact of senior manager characteristics on: (i) financial and non-financial performance (Breakwell & Tytherleigh, 2010), (ii) executive pay (Brickley et al., 2010; Reiter et al., 2009); (iii) social activities (Gauthier et al., 2019), and (iv) general disclosure practices (Ntim et al., 2017; Soobaroyen et al., 2014, 2019).

For example, Breakwell and Tytherleigh (2010) report insignificant association among VC age, tenure, educational background and performance (financial and non-financial) of 147 UK HEIs over the period 1999-2004. Similarly, Brickley et al. (2010) find that CEO age is not related to their pay, whereas CEO tenure is positively linked with their pay among 308 US non-profit hospital over the period 1998-2002. Further, Ntim et al. (2017) find that general voluntary disclosure is insignificantly influenced by VC gender diversity for 130 UK HEIs in 2012. Overall, the findings of the above studies suggest that senior manager characteristics, including age, tenure, education and gender can have an influence on organisational decisions, including voluntary governance disclosures. Therefore, we propose the following hypothesis:

H1: *Vice-chancellor characteristics are positively and significantly associated with HEIs voluntary governance disclosures.*

2.2 Internal governance structures and voluntary governance disclosures

In addition to examining the impact of VC characteristics on governance disclosure practices, we also investigate the effect of four board structure variables (the existence of a governance committee, governing board ethnic/gender diversity, governing board

independence, and governing board meetings) on governance disclosure behaviours. These four variables have been selected for the following reasons. First, and despite increasing anecdotal evidence and suggestions that governing boards have an important monitoring role in ensuring compliance with good governance standards (CUC, 2009, 2013, 2014; Ntim, 2018), prior HE studies have largely examined the effect of general institutional features (e.g., age and size) on general disclosure behaviours (Adhikariparajul et al., 2019; Coy et al., 2001; Gray & Haslam, 1990). Second, governing boards work closely with VCs to oversee the strategic direction of HEIs, as well as to ensure that HEIs' mission and vision are achieved (Williams, 2018), and this can increase the pressure on senior managers to meet the expecations of key stakeholders (i.e., donors, OFS and students) by engaging in voluntary disclosure about governance practices.

Third, information about these four govering board variables can easily be obtained from HEIs annual reports, as well as they can be objectively measured (Gordon et al., 2002; Ntim et al., 2017). Finally, these four board structure variables have not been widely investigated in the existing voluntary disclosure literature, and hence our study aims to improve the current understanding of whether the existence of a governance committee, governing board diversity, governing board independence, and governing board meetings are important drivers of voluntary governance disclosures in UK HEIs. The hypotheses for these four variables are developed in the following subsections.

2.2.1 The existence of a governance committee and voluntary governance disclosures

Although the UK Committee of University Chairs (2014) governance guidelines require HEIs to establish audit, remuneration and nomination committees to oversee risk, accounting, reporting, and governors' compensation/appointment issues, the guidelines do not explicitly dictate that HEIs need to establish a separate governance committee. Nevertheless, existing

studies suggest that organisations, which voluntarily develop an independent governance committee to continuously oversee compliance with, and disclosure of, governance recommendations, tend to commit to higher voluntary governance compliance/disclosure compared with those organisations that do not develop such a committee (Ntim et al., 2012, 2017). This can be explained using the efficiency and legitimation views of neo-institutional theory (Ntim et al., 2017) that organisations, including HEIs, may voluntarily establish a governance committee in order to demonstrate that they are accountable to the community, and this in turn, can improve their legitimacy by fulfilling the influential stakeholders' expectations, and thereby gaining their support to secure access to the needed resources, including financial resources.

Empirically, there is limited research on the influence of governance committees on governance disclosure practices in general, but in HEIs in particular, and this offers a great chance to make original contributions to the extant disclosure research. Ntim et al. (2012) examined this association using 169 South African listed companies, and reported that companies that voluntarily develop an independent governance committee tend to commit to increased voluntary disclosures than those that do not develop a committee. Consequently, we hypothesise that:

H2: *HEIs that establish a separate governance committee engage in more voluntary governance disclosures than those that do not have a governance committee*.

2.2.2 Governing board diversity and voluntary governance disclosures

Governing board diversity is deemed as a crucial mechanism that can influence its performance and effectiveness (Ntim et al., 2017). Prior studies have defined board diversity using different observable (e.g., gender, ethnic origin and age) and non-observable (professional/educational and religious background) attributes (Carter et al., 2003). In this

study, we focus on ethnic and gender diversity attributes of the governing board and this is due to two reasons: (i) the majority of past studies focused mainly on these two attributes of board diversity (Carter et al., 2003; Ntim et al., 2017); and (ii) these two attributes can be measured more accurately (Buse et al., 2016; Elmagrhi et al., 2019).

Theoretically, and from a legitimation perspective of neo-institutional theory, board diversity can be useful in providing better connections between organisations and their external environment (influential stakeholders) by enhancing corporate legitimacy and image that can help in providing better access to critical resources (Freeman & Reed, 1983; Suchman, 1995). Similarly, and from neo-institutional (efficiency view) perspective, diverse boards are often associated with better monitoring and independence than less diverse counterparts, and this may make diverse boards better at protecting public interests than less diverse ones (Coy et al., 2001; Nelson et al., 2003). Therefore, and given that top management teams tend to have significant influence on the extent of voluntary disclosures (Ntim et al., 2017), we argue that gender and ethnically diverse corporate boards are more likely to put greater pressure on top management teams to engage in increased governance disclosures.

Empirically, much of the extant studies have been conducted on profitable organisations (Barako et al., 2006; Elmagrhi et al., 2016; Gul et al., 2011; Katmon et al., 2019; Nalikka, 2009), and the findings of these studies propose that the levels of disclosure in annual reports is positively influenced by board gender and ethnic diversity. However, there are relatively few empirical studies examining the influence of board ethnic and gender diversity on disclosure behaviours among non-profitable organisations. For example, Buse et al. (2016) report a statistically positive relationship among board ethnic, gender diversity and the adoption of good governance practices using 1,456 US non-profitable organisations. With respect to studies relating to the HE sector, to the best of our knowledge, none of the existing studies has examined the link between governing board diversity and the extent of voluntary disclosures

in general, but governance disclosures, in particular. This provides a good chance to contribute to the existing disclosure research in the HE sector. From a regulatory perspective, the Committee of University Chairs (CUC) (2014, 2018) emphasises the importance of board diversity in enhancing board independence and effectiveness by encouraging UK HEIs to diversify their boards in many aspects, such as gender and ethnicity. Therefore, we hypothesise that:

H3: *Board ethnic and gender diversity are positively associated with governance disclosures.*

2.2.3 Governing board independence and voluntary governance disclosures

From a legitimation perspective of the neo-institutional theory, HEIs tend to appoint independent (lay) governors in order to minimise any legitimacy gaps that may exist between their managers and stakeholders (Freeman & Reed, 1983). Specifically, institutional scholars argue that good governance is characterised by appointing independent (lay) governors, and this is because independent (lay) governors are often appointed to represent the demands and interests of different stakeholders. Therefore, independent (lay) governors are expected to have considerable effect on board decisions, including governance disclosure, in order to fulfil stakeholders' expectations. Meeting the needs of different stakeholders can help in enhancing the legitimacy and image of HEIs through improving linkages with the most influential stakeholders (Suchman, 1995).

Further, and based on the efficiency perspective of the neo-institutional theory, the appointment of independent (lay) governors can help organisations in attracting critical resources (e.g., finance and business contacts) by providing better networks between them and their external environment (Freeman & Reed, 1983; Suchman, 1995). Additionally, institutional scholars argue that the appointment of independent (lay) governors may help in enhancing public accountability and transparency by increasing managerial monitoring, and thereby reducing any agency conflicts between managers and stakeholders (Coy et al., 2001;

Jensen & Meckling, 1976). Therefore, the presence of independent (lay) governors can positively affect the extent of voluntary governance disclosures by increasing pressure on the governing board members to commit to high governance disclosures.

The empirical evidence largely suggests that the presence of non-executive governors on a corporate board has a positive influence on governance disclosure behaviours in publicly traded corporations (Beekes & Brown, 2006; Donnelly & Mulcahy 2008), whereas Allegrini and Greco (2013) detect no link between these two variables of interest. However, there is a scarcity of studies investigating the link between governing board independence and voluntary disclosures among non-profitable organisations in general (Saxton et al., 2012), but HEIs in particular (e.g., Lokuwaduge & Armstrong, 2015; Maingot & Zeghal, 2008; Nelson et al., 2003).

Additionally, most of the previous studies have merely been descriptive. Arguably, this provides a great chance to make original contributions to the extant governance disclosure literature. For example, the results of surveys conducted by Maingot and Zeghal (2008) and Nelson et al. (2003) suggest that independent (lay) governors have significant influence on governance disclosure decisions in HEIs. Nevertheless, Saxton et al. (2012) report a statistically negative association between voluntary financial disclosure and the proportion of outside board members using a sample of 40 Taiwanese non-profitable medical institutions in 2001. From regulatory and policy perspective, the CUC (2014, 2018) recommends that the majority (at least 50 per cent) of governing board members should be lay governors. This indicates that the CUC (2014, 2018) views increasing the proportions of lay governors as a positive governance development, which can positively influence good governance disclosure practices. Therefore, we hypothesise that:

H4: *Governing board independence is positively associated with governance disclosures.*

2.2.4 Governing board meetings and voluntary governance disclosures

Neo-institutional (efficiency perspective) theory views the number of board meetings as an important measure of directors' work effort and suggest that regular board meetings can increase managerial control and improve board performance by granting governors more time to plan, discuss and assess the performance of executives (Coy et al., 2001; Ntim et al., 2017). Similarly, and from the neo-institutional legitimisation perspective, frequent board meetings may be useful in informing and updating governors regarding the developments within their institutions, and this can improve HEIs legitimacy and image by enhancing the representation of stakeholders (Freeman & Reed, 1983; Suchman, 1995). However, there are other studies (e.g., Vafeas, 1999) that indicate that regular meetings of the board may not always enhance board effectiveness, since it can increase the potential for disagreement between board members, which can impact negatively on HEI outcomes, including governance disclosures.

Empirically, prior studies have documented a negative link between financial performance and the frequency of board meetings (Vafeas, 1999), but positive link between board meetings and earnings forecast accuracy (Karamanou & Vafeas, 2005), and voluntary disclosure practices (Jizi et al., 2014). However, there is limited, but increasing evidence relating to the impact of the frequency of board meetings on different outcomes of non-profitable organisations (Elmagrhi et al., 2018; Van Puyvelde et al., 2018; Xue & Niu, 2019). For example, and using a sample of 443 US non-profitable organisations, Van Puyvelde et al. (2018) find a positive link between the frequency of board meetings and board efficiency and effectiveness. However, Xue and Niu (2019) find that the frequency of board meetings is negatively linked to corporate transperency using a sample of 200 Chinese charities over 2010-2014 period.

With respect to studies that have focused on the HE sector, there is limited evidence on whether governing board meetings can impact on voluntary disclosure behaviours in general,

and governance disclosures in particular. This lack of empirical evidence provides an opportunity to make original contribution to the existing research. The CUC (2014, 2018) considers the frequency of meetings as a positive development that enhances board effectiveness, and thus, requiring boards of UK HEIs to have a minimum of four meetings each year. This implies that the CUC believes that board meetings can positively influence HEI performance, including governance disclosure behaviour. Thus, we hypothesise that:

H5: *Frequency of governing board meetings is positively associated with governance disclosures.*

3. Methodology

3.1 Data and sample

Our sample is drawn from all (population) 164 UK HEIs (universities, colleges and other HEIs), as at 31 July 2014. Given that we manually collected data mainly using annual reports, which is a time-consuming process, we narrowed down our sample to HEIs whose annual reports are available for the period 2009-2014. This selection criterion resulted in a balanced panel dataset of 117 HEI over the period 2009-2014 (i.e., 702 HEI-year observations). As shown in Table 1, the final sample of 117 institutions made up of 3 HEIs from Northern Ireland, 8 HEIs from Wales, 16 HEIs from Scotland and 90 HEIs from England (58 Pre-92 and 59 Post-92)[3].

We started our analysis in 2009 because the 2007/08 global crisis has led to significant cuts in terms of funding available to public institutions, including HEIs (Franco-Santos et al.,

[3]Prior studies (Adhikariparajul et al., 2019; Boliver, 2015) suggest that pre-92 HEIs differ significantly from post-92 HEIs in terms of size, economic resources, research activity and reputation. Specifically, Boliver (2015) argues that older established HEIs (pre-1992) tend to be large in size, wealthy, research intensive and have high national (e.g., CUG and GUG league tables) and international (QS and THE rankings) reputation, and thus pre-92 HEIs are expected to be more motivated to engage in disclosures about their good practices in order to maintain/further develop their reputation in the sector, as well as to gain the powerful stakeholders' support (students, employee and funding bodies/OFS).

2014). Following the significant cuts to public funding, many market/quasi-market-oriented reforms have been introduced in the UK HE sector, including the 2010 Browne Report, and these reforms have been aimed at reducing costs and promoting student choice. Consequently, this has increased the need to demonstrate greater governance, accountability, transparency and value-for-money among UK HEIs. The analysis ends in 2014 due to the labour intensive nature of manually collecting the required data, as well as it was the last year for which the required data was available when our data collection started.

Table 1 near here

The Higher Education Statistics Agency (HESA) website was used to determine all UK HEIs to be included in our final sample. As explained earlier, we targeted all 164 HEIs for inclusion in our final sample and we visited their websites to download all annual reports over the 2009-2014 period. Governance and accounting data were mainly collected from annual reports. In addition to all the reports, we also used other sources of data, including information published on universities' websites. We made every effort to have access to the annual reports for a large number of HEIs. For example, where annual reports for some HEIs were not published online, we contacted the relevant person in order to directly obtain either soft or hard copies of their institutions' annual reports.

Annual reports are relied on mainly to collect our research data due to their mandatory nature, and this makes them a credible source to obtain governance information. For example, the Office for Students (OfS) requires all UK HEIs to prepare audited annual reports and follow the Statement of Recommended Practice: Accounting for Further and Higher Education (SORP) standard. Despite the mandatory nature of the annual reports (Dahm et al., 2018), there is no clear requirement that specifies their exact nature and/or format, and hence we argue that the level of governance disclosures in UK HEIs' annual reports can be influenced by the vice-chancellors (VCs)/governing board preferences, as well as the opinions expressed by auditors

(Breakwell & Tytherleigh, 2008a, 2008b, 2010; Cullinan et al., 2012; Middlehurst, 2004; Ntim et al., 2017).

3.2 Variable definition and model specification

The list of all variables used in our analysis and their definitions are presented in Table 2. To test our research hypotheses (*H1-H5*) relating to the links between internal governance structures and governance disclosures among UK HEIs, we developed our research model and variables as follows. First, we employ UK HEIs Governance Index (*HEGI*) as our dependent variable. We developed the *HEGI* based on the definition provided by Nolan Committee reports (1995, 1996) and the recommendations of UK HE good governance codes/guidelines.

Specifically, and according to the Nolan Committee reports (1995, 1996), good governance is defined to incorporate seven principles, which are integrity, openness, leadership, honesty, objectivity, accountability and selflessness. In this paper, we follow the recommendations of the CUC (2008, 2009, 2013, 2014 and 2015) and CSC (2013) codes/guidelines in defining good HE governance as: (i) maintaining strong communication, engagement and dialogue with stakeholders (stakeholder dialogue); (ii) maintaining strong internal control and risk management systems (accountability and auditing); (iii) displaying strong control and monitoring over senior management/governing board performance and pay (rewards, pay and evaluation of performance); (iv) applying strong structures and reviewing processes (structures and procedures); and (v) maintaining strong governing board (board governance). Therefore, and following prior voluntary disclosure studies that have been conducted on non-for-profit organisations (Fischer et al., 2010; Nie et al., 2016; Saxton et al., 2012; Sanzo-Pérez et al., 2017), the concept of good governance is operationalised in our study by measuring the presence/absence of the examined 100 best governance practices. Using this approach, HEIs with higher governance compliance/disclosure scores are deemed to have good governance and vice-versa for poorly-governed HEIs.

The *HEGI* consists of 100 individual items classified into five categories as follows: 7 items on stakeholder dialogue – *STKD*; 20 items on accountability and auditing – *ACNA*; 22 items on rewards, pay and evaluation of performance – *PERW*; 24 items on structures and procedures – *PROS*; and 27 items on board governance – *GONB*. The items included in the *HEGI* were extracted from several sources, such as 2009, 2013, 2014 and 2015 governance codes/guidelines published by the CUC; 2015 governance and remuneration of senior staff guideline published by the CUC; 2013 governance code published by the CSC; and 2008 audit committee guideline published by the CUC.

Items contained in the HEGI were coded by employing the widely used binary/dichotomous scoring method (a value of "1" is awarded to governance provisions that are disclosed in the annual reports of HEIs and 0 otherwise). Using this scoring method, a HE's overall compliance/disclosure score can range between 0 and 100, which is then expressed as a percentage that may range from 0% (0 out of the 100 best governance provisions included in our HEGI – indicating poor compliance/disclosure) and 100% (100 out of the 100 best governance provisions included in our HEGI – indicating strong compliance/disclosure). We employed the same approach (i.e., governance score expressed as a percentage of the examined provisions) to compute our sub-indices. For example, the governing board sub-index (*GONB*) score may range from 0% (0 out of the 27 best governing board provisions included in this sub-index) and 100% (27 out of the 27 best governing board provisions included in this sub-index). The 100 best governance provisions included in our *HEGI* are presented and defined in the Appendix.

The binary/dichotomous scoring method has been employed in our study due to the following three reasons. First, there is no general theoretical agreement on how different governance disclosure items should be weighted, and hence using the binary/dichotomous scoring scheme seems to be appropriate, since it can eliminate any bias towards a particular

governance disclosure items, as is typically the case with binary coding method (Barako et al., 2006; Ntim et al., 2012). Second, and distinct from ordinal scoring approach, the binary/dichotomous scoring scheme does not require coders to make any judgement about the weight of different governance items (Elmagrhi et al., 2018; Haniffa & Cooke, 2002), and this may decrease the subjectivity in weighting and improve the reliability of our developed index. Finally, binary/dichotomous scoring has largely been adopted by prior studies (Allegrini & Greco, 2013; Beekes & Brown, 2006; Elmagrhi et al., 2016, 2018; Haniffa & Cooke, 2002; Ntim et al., 2012), and this can facilitate comparison with the findings of these studies.

We made every effort to ensure that our *HEGI* is a valid and reliable measure for the governance disclosures among UK HEIs. For example, the coding process has been conducted over two rounds. In the first round, three independent and experienced coders have coded governance disclosures for an initial sample of 10 HEIs over the period 2009-2014. In the second round, the three coders have critically discussed the coded materials, coding instruments and categories and corrected any inconsistencies or mistakes identified in the first round. The three coders have also coded a further 10 HEIs over the examined period (2009-2014) and no inconsistencies or mistakes with the coding procedure were identified, which implies that high levels of consistency and reliability in the coding procedure were achieved between the first and second rounds of coding process.

In addition, and in order to measure the internal consistency reliability of the HEGI, we employed Cronbach's alpha. According to Botosan (1997), indices are valid and reliable measures of disclosure quality, if the coefficient alpha based on standardised data is above 65%. The coefficient alpha based on standardised data for the five governance categories in our HEGI is 74%, implying that our index is a valid and reliable measure for governance disclosures.

Table 2 near here

Second, our explanatory variables are internal governance mechanisms, which include vice-chancellor characteristics (*VCGEN*, *VCEDU*, *VCAGE* and *VCTEN*), and other governance mechanisms (*EGC*, *GBGED*, *GBIND* and *GBMT*). Finally, we controlled for 12 HEI-specific characteristics, which are governing board size (*GBZE*), size of the audit firm (*AFZE*), HEI age (*HEIAGE*), HEI size (*HEIZE*), revenues from funding councils (*CFUND*), dummy for post-1992 (*PST92*), Russell group dummy (*RUSG*), liquidity (*LQUD*), capital expenditure (*CPEX*), leverage (*LEVR*), growth (*GRTH*) and financial risk (*RISK*).

In terms of board size, Freeman and Reed (1983) and Gordon et al. (2002) suggest that larger boards are associated with greater diversity in the form of stakeholder representation, knowledge, expertise and skills, and this diversity can increase the need of HEIs to disclose more information about their governance structures in order to meet societal expectations of stakeholders. However, Yermack (1996) advocates the view that large boards often suffer from poor collaboration and communication between board members, and this in turn can diminish board efficiency/effectiveness, which may adversely impact HEIs governance disclosure practices.

The size of external auditing firms can also impact voluntary governance disclosures (Sarhan et al., 2019). Holm and Zaman (2012) suggest that larger auditing firms are more effective in monitoring and controlling management, since they are more capable (characterised by having greater skills, expertise, knowledge, experience and financial strength) at delivering high-quality audit services compared with smaller counterparts. Similarly, Ntim et al. (2017) argue that large auditing firms have more incentives to deliver high-quality audit services in order to avoid losing customers, and hence large auditing firms may put more pressure on HEIs to engage in increased governance disclosures to demonstrate accountability to stakeholders. However, a study conducted by Gordon et al. (2002) suggest

that audit firm size may act as a substitute for weak internal control structures, and hence a negative link between audit firm size and disclosure practices can also be expected.

Size of HEIs and growth rate may also impact on voluntary governance disclosures. Luoma and Goodstein (1999) and Saxton and Guo (2011) suggest that large organisations and those with high growth rates are often associated with greater political costs resulting from increased attention by external parties, including media, lobby groups, state and the general public. This can result in increasing pressure on organisations to engage in more voluntary disclosures about their governance practices. In contrast, Saxton et al. (2012) suggest that large non-profitable organisations and those with high growth rates have less incentives to engage in voluntary disclosures in order to avoid attracting public attention to them, and hence organisation size and growth rate may negatively influence on governance disclosure practices.

With respect to the HEIs age, emphasise on research (Russell Group) and status (pre- and post-1992), Adhikariparajul et al. (2019) and Boliver (2015) argue that old (established pre-1992) and research intensive HEIs are more motivated to engage in disclosure about their good practices in order to maintain/further develop their reputation in the sector. Further, Boliver (2015) and Ntim et al. (2017) suggest that older established (pre-1992) and Russell group HEIs tend to be have more experience and are more aware of the informational needs of different stakeholders, and this in turn can impact positively on governance disclosure practices. In contrast, Salter and Tapper (2002) suggest that teaching-intensive and post-1992 have a greater need to voluntarily disclose information about their good governance practices in order to improve their legitimacy/image in the sector, as well as to gain the powerful stakeholders' support (students, employee and funding bodies/OFS).

The type of funding may also influence voluntary disclosure behaviours. According to Saxton and Guo (2011) non-profitable organisations that are more reliant on government resources are of greater need to demonstrate higher accountability, transparency and value for

money in order to maintain the trust of their powerful stakeholders, as well as secure access to financial resources. Thus, HEIs that rely more on public funds (i.e., OFS) are expected to engage in more disclosure about their governance practices than those that are less reliant on such sources of finance. Similarly, Coupet (2018) argues that HEIs with more diverse sources of funding are less likely to be influenced by competing public interests and political alliances, and hence they are expected to be of less need to engage in voluntary disclosure about their governance structures.

Watson et al. (2002) also suggest that liquidity can influence voluntary disclosure practices. Specifically, they argue that organisations with high liquidity tend to engage in increased voluntary disclosures in order to signal their financial sustainability and protect their position in the market. In contrast, Wallace et al. (1994) suggest that low liquidity is viewed as bad news by stakeholders, and hence organisations with low liquidity are expected to engage in greater voluntary disclosures to demonstrate accountability to their powerful stakeholders. Additionally, and with respect to capital structure, Saxton et al. (2012) suggest that increased capital investments can improve an organisation' competitive advantages and growth opportunities by allowing for more research and development activities, and this can have a positive impact on the organisation's long-term sustainability. Greater capital expenditure, however, requires strong control systems to ensure that stakeholders' interests are protected (Nilsson, 2002), and thus organisations with greater capital expenditure are likely to have a greater need to commit to higher levels of voluntary governance disclosures.

Saxton et al. (2012) also suggest that non-profitable organisations with high debt ratios are likely to engage in more voluntary disclosures in order to reduce financing costs and meeting the expectations of debt providers. Similarly, Gordon et al. (2002) argue that HEIs with high debt ratios (issue more debt securities) are subject to additional disclosure requirements by debt providers, since debt receivers have more incentives to expropriate debtholders' wealth, and

thus HEIs with high leverage ratios are expected to engage in an increased disclosure about their governance practices. Finally, Ntim et al. (2017) suggest that the increased risk, uncertainty, operational complexity and competition in the HE sector has increased the need for HEIs to engage in greater voluntary disclosures to demonstrate accountability to key stakeholders. Thus, HEIs with higher financial risk are expected to disclose more information about their governance practices. Therefore, and following prior studies, our baseline OLS regression model is as follows:

$$HEGI_{it}=\alpha_0+\beta_1 IGMs_{it}+\sum_{l=1}^{12}\beta_l CNTS_{it}+\varepsilon_{it} \quad (1)$$

Where *HEGI* is the UK HEIs Governance Index, *IGMs* refers to five individual governance mechanisms (*IGMs*), including vice-chancellor characteristics (*VCGEN*, *VCEDU*, *VCAGE* and *VCTEN*), the existence of a governance committee (*EGC*), governing board ethnic/gender diversity (*GBGED*), independence (*GBIND*) and meetings (*GBMT*). *CNTS* represents 12 control variables, which are size of the governing board (*GBZE*), audit firm size (*AFZE*), HEI age (*HEIAGE*), HEI size (*HEIZE*), revenues from funding councils (*CFUND*), dummy for post-1992 (*PST92*), Russell group dummy (*RUSG*), liquidity (*LQUD*), capital expenditure (*CPEX*), leverage (*LEVR*), growth (*GRTH*) and financial risk (*RISK*). In the following section, we present and discuss the empirical findings relating to this paper.

4. Findings and discussion

4.1 Summary descriptive statistics, univariate and bivariate analyses

Table 3 and 4 outline descriptive statistics for our research variables. The statistics from Table 3 indicate that the levels of governance disclosures vary substantially among all 117 UK HEIs. However, the disclosure levels are relatively low, which is consistent with the findings of past studies that examined general disclosure practices among HEIs (Banks & Nelson, 1994; Dixon et al., 1991; Fischer et al., 2010; Ntim et al., 2017). More precisely, Panel 1 of Table 3

suggests that the *HEGI* score ranges between 8% and 75% with an average (median) of 40.02% (40.00%) of HEIs in UK complying with the 100 best governance recommendations investigated. In comparison and to contextualise the current findings, Ntim et al. (2017) report that general disclosure score among 130 UK HEIs ranges between 78% and 15%, with a mean value of 44%.

Table 3 also shows that the levels of governance disclosures have increased over time and that is similar to the findings of past HE disclosure studies (Banks & Nelson, 1994; Dixon et al., 1991). For example, the level of governance disclosures was 37.37% in 2009 and increased to 42.51% in 2014, and this resulted in an overall increase of approximately 14% over the 2009-2014 period. Additionally, and in terms of the *HEGI'*s sub-indices, Table 3 suggests similar low levels of governance disclosure with increasing patterns over time. For example, results reported in Table 3 indicate that the average governing board (process and structure) disclosure score of 52.65% (31.52%), ranging between 14.81% (0.00%) and 74.07% (79.17%), has increased steadily from 49.51% (29.17%) in 2009 to 55.21% (34.12%) in 2014. This has resulted in an overall increase of 11% (17%) in the level of governance disclosures over the 2009-2014 period. Further, the pattern of increases in the remaining three sub-indices (stakeholder dialogue disclosures; accountability and auditing disclosures; and rewards, pay and evaluation of performance disclosures) are similar to those of (i) governing board, and (ii) process and structure disclosures.

Table 3 near here

Second, we split our sample into two groups based on their status (0 given to pre-92 and 1 for post-92 HEIs) and run the independent samples *t*-test to compute the mean differences and Mann-Whitney test to compute the median differences among our sample from both distributions. The results of the univariate analysis (*t-test*) in Table 3 suggest that generally, the levels of voluntary governance disclosures are not statistically different between pre-92 and

post-92 HEIs. Third, the descriptive statistics relating to the internal governance mechanisms (*IGMs*) and control variables (*CNTS*) are reported in Table 4, which exhibit wide variability in their distributions. For example, Panel 1 of Table 4 shows that on average 82.91% of UK HEIs' vice-chancellors are men, ranging between 0.00% and 100% over the six-year analysed.

Similarly, Table 4 shows that on average 17.24% of UK HEIs have established an independent governance committee, whilst the majority of UK HEIs' boards are controlled by lay managers, which is consistent with the recommendations of CUC (2014, 2018) and the findings of prior HE studies (Ntim et al., 2017). Further, the evidence of Table 4 indicates that the representation of women, Black, Asian and Ethnic Minorities (BAME) on UK HEIs' governing board are relatively low, ranging from a minimum of 5.26% to 65.52%, with an average of 31.74%. Table 4 also shows that governing board size (frequency of meetings) ranges between 11 (3) and 39 governors (12 meetings), with the average governing board having 23.49 governors (4.87 meetings). This is largely consistent with the recommendations of 1997 Dearing Report and 2009/2014 CUC governance Code, which indicate that the size of a HEI's board should be between 12 and 25 members. Results reported in Table 4 also indicate that there is great variation among all of the other remaining independent and control variables.

Table 4 near here

Finally, Table 5 reports the results of correlation matrices in order to check the issue of multicollinearity. The results of Pearson and Spearman have been reported as a robustness check and, crucially, both tests have similar correlation coefficients, implying that any remaining multicollinearities may not be statistically harmful. Further, and as shown in Models 1-10 of Table 6, the VIF values relating to all of our examined variables are relatively low and do not exceed 10, implying that our variables do not suffer from any serious multicollinearity problems (Cohen et al., 2003).

Moreover, and similar to the findings of prior studies on non-profitable organisations (del Mar Gálvez-Rodríguez et al., 2014; Saxton et al., 2012; Xue & Niu, 2019), Table 5 demonstrates that, in general, internal governance mechanisms (*IGMs*) and control variables (*CNTS*) are significantly correlated with *HEGI*. For instance, and in line with our predictions, vice-chancellor tenure (*VCTEN*), existence of a governance committees (*EGC*), governing board independence (*GBIND*), meetings (*GBMT*), HEI size (*HEIZE*), revenues from funding councils (*CFUND*) are positively related to *HEGI*. In contrast, and not consistent with our expectations, the *HEGI* is negatively related to governing board diversity (*GBGED*) and audit firm size (*AFZE*). Similarly, the evidence of no association among the *HEGI*, vice-chancellor gender (*VCGEN*), discipline (*VCEDU*), age (*VCAGE*), governing board size (*GBZE*), HEI age (*HEIAGE*), status (*PST92*), Russel group (*RUSG*), liquidity (*LQUD*), capital expenditure (*CPEX*), leverage (*LEVR*), growth (*GRTH*) and risk (*RISK*).

Table 5 near here

4.2 Regression analyses and discussion

Table 6 presents the multivariate (OLS) regression estimates of the effect of governance variables – vice-chancellor characteristics (*VCGEN*, *VCEDU*, *VCAGE* and *VCTEN*), the existence of a governance committee (*EGC*), diversity (*GBGED*), independence (*GBIND*) and meetings (*GBMT*) on *HEGI*. Overall, the results show that the governance variables are important in explaining the observed differences in the *HEGI*.

First, and as shown in Model 1 of Table 6, vice-chancellor occupational background (*VCEDU*) and gender (*VCGEN*) are insignificantly associated with the *HEGI*, which is not in line with *H1*. The insignificant effect of *VCGEN* is empirically supported by Ntim et al. (2017), who find evidence of insignificant effect of *VCGEN* on the general disclosures of the 130 UK HEIs. This insignificant effect of *VCGEN* may due to the fact that UK HEIs are dominated by male VCs (less than 18% of UK HEIs appoint women as vice-chancellors, see Table 4), with

a clear majority (more than 82%) of HEIs vice-chancellors being men (see Table 4 for more details). This implies that women have limited impact on boards' decisions, including voluntary governance disclosures. Further, the evidence of an insignificant effect of *VCEDU* on the *HEGI* is inconsistent with *H1*.

Table 6 near here

Model 1 of Table 6 also shows that both vice-chancellor age (*VCAGE*) and tenure (*VCTEN*) have significant influence on *HEGI*. Specifically, Table 6 demonstrates that *VCAGE* is negatively associated with *HEGI*, which is not in line with *H1* nor the findings of prior studies that have been conducted in non-profitable organisations (Brickley et al., 2010) and HEIs (Breakwell & Tytherleigh, 2010). Theoretically, we argue that this evidence lends support for the legitimation view of neo-institutional theory that, organisations with older managers are less likely need to be accountable to the public, and this can be due to the fact that boards with older governors are often associated with higher monitoring and independence (Ntim et al., 2017). Consequently, this can reduce the need for organisations to engage in increased voluntary governance disclosures. Additionally, findings in Table 6 indicate that *VCTEN* has a strong and positive influence on *HEGI*, which lend support for our hypothesis (*H1*) and the efficiency view of neo-institutional theory, that boards with long-tenured directors often suffer from poor governance structures, and as a result, voluntary governance disclosures appear to act as a substitute for weak internal control systems.

Second, regression estimates in Table 6 (Model 1) reveal a significant positive effect of the existence of a governance committee (*EGC*) on *HEGI*, and hence, *H2* is supported. This positive effect of *EGC* also lends support for the findings of Ntim et al. (2017). Theoretically, this is in line with the predictions of the neo-institutional (legitimation view) theory that HEIs may voluntarily establish a governance committee in order to demonstrate greater transparency and accountability to the community, as well as to enhance their legitimacy/image in the

marketplace. In addition, the regression results illustrated in Table 6 reveal that governing board diversity (*GBGED*) has a significant negative influence on *HEGI*. The negative effect of *GBGED* does not lend support for our hypothesis (*H3*) and the findings of prior studies on non-profitable organisations (Buse et al., 2016), which indicate that having diverse boards can increase the pressure on organisation to commit to high governance disclosures. However, this negative impact may be due to the fact that greater diversity of an organisation board can increase disagreement between board members and that can also diminish boardroom performance and effectiveness (Young, 2004), which may impact negatively on disclosure practices.

Third, the regression estimates in Table 6 (Model 1) reveal a significant positive effect of governing board independence (*GBIND*) on *HEGI*. This positive relationship lends empirical support for our hypothesis (*H4*) and the findings of prior HE studies (Maingot & Zeghal, 2008; Nelson et al., 2003), which indicate that HEIs with more outsider/lay directors tend to commit to greater governance disclosures. Theoretically, the obtained results provide evidence to support our employed theory. For instance, neo-institutional (efficiency and legitimation views) theory proposes that organisations tend to appoint independent directors in order to improve stakeholder representation, and that in turn can help in improving their reputation/image, as well as allow them to access critical resources (Freeman & Reed, 1983; Suchman, 1995).

Finally, the reported results in Table 6 (Model 1) reveal a significant positive influence of governing board meetings (*GBMT*) on *HEGI*. The evidence of this positive impact is in line with our hypothesis (*H5*) and the theoretical notion (efficiency and legitimation perspectives) that that regular board meetings may enhance public accountability and transparency by increasing managerial monitoring and that in turn can provide access to critical resources by improving HEIs legitimacy and image via improvement in the board representation of

stakeholders (Coy et al., 2001; Ntim et al., 2017). Similarly, our *GBMT* findings lend support for the findings of Van Puyvelde et al. (2018), who report that regular meetings of the board can enhance board efficiency and effectiveness by granting governors more time to plan, discuss and assess the performance of executives, and this can impact positively on governance disclosure practices.

Regarding the control variables, the coefficients on the HEI size (*HEIZE*), age (*HEIAGE*) and revenues from funding councils (*CFUND*) are consistent with our predictions. In contrary, the negative effect of Russell group (*RUSG*), and insignificant effect of post-1992 (*PST92*), liquidity (*LQUD*), capital expenditure (*CPEX*), leverage (*LEVR*), growth (*GRTH*) and financial risk (*RISK*) are not expected.

4.3 Robustness tests

We perform different additional tests to deal with the usage of different proxies of governance index, HEIs' size, status (i.e., university vs. non-university), geographical distribution (i.e., Scotland, Wales, Northern Ireland and England), and various types of endogeneity issues. First, our results indicate that variations in the *HEGI* can primarily be accounted for by the individual governance mechanisms (*IGMs*). However, the *HEGI* is made up of five different types of governance items (*GONB, PROS, PERW, ACNA* and *STKD*, respectively). This implies that it is likely for the association between each component of the *HEGI* to vary, whereby some sections may have powerful links with the *HEGI*, whilst other sections may have weaker relationships with the *HEGI*. Therefore, in order to ascertain whether the association between individual components of the *HEGI* and *IGMs* differ across the various components, we have re-estimated our model by replacing the *HEGI* with each component at a time. Overall, the results reported in Models 2-6 are comparable to those presented in Model 1 of Table 6, and thus our findings are not affected by the use of different sub-indices.

Second, and as explained in the research design section, all items incorporated in our index (*HEGI*) are given the same weight. However, and given that the five sub-sections of our index differ substantially in terms of the number of items incorporated in each of them, this resulted in allocating different weight to each sub-section (i.e., *GONB* 27%, *PROS* 24%, *PERW* 22%, *ACNA* 20% and *STKD* 7%). Therefore, to ascertain whether the association between our explanatory (*IGM*) and predicted (*HEGI*) variables is not affected by the weight given to each of these five sub-sections, we developed a new index, named *WHEGI*, by giving the same weight of 20% to each of the five sub-section. The reported results in Table 6 (Model 7) remain very similar to what we have reported in Model 1, and hence our main findings seem not to be influenced by the weight of the five sub-sections.

Third, and in line with prior HE studies (Heinicke & Guenther, 2020; McDonald, 2013) we used the number of staff as an alternative measure of HEIs' size. As shown in Model 8 Table 6), the results relating to our independent variables remain very similar to those reported in Model 1, implying that our main findings remain robust to the use of alternative size measures. Fourth, prior studies suggest that universities tend to be large institutions and have complex governance structures than their non-universities counterparts (Franco-Santos et al., 2014; Teichler, 1998), and this can influence governance disclosure practices differently. Therefore, we replaced the Russel Group universities dummy (*RUSG*) in Model 1 with university vs. non-university dummy, and the results are presented in Model 9 (Table 6). Overall, our findings remain robust to the inclusion of university and non-university dummies.

Fifth, and consistent with prior UK HE studies (Croxford & Raffe, 2015), we include four country dummies (i.e., Scotland, Wales, Northern Ireland and England) to control for geographical differences among UK HEIs. Our results that are reported in Model 10 (Table 6) remain very similar to those reported in Model 1, confirming the robustness of our main findings.

Sixth, to control for reverse causality bias between *IGMs* and *HEGI*, as well as to prevent the correlation between *IGMs* and the error terms, we replicate Model 1 of Table 6 by using one-year lagged values for all independent and control variables. The coefficients of the lagged-effect model presented in Table 7 (Model 1) remain very similar to what we have reported in Table 6 (Model 1), and hence our findings hold for the usage of lagged-structure model. Seventh, prior studies suggest that our independent (*IGMs*) and dependent (*HEGI*) variables can be determined by unidentified HEI-specific heterogeneities (e.g., operational, cultural and managerial differences) (Ntim et al., 2017). Thus, to address such a problem, a fixed-effect model is estimated. The obtained findings in Table 7 (Model 2) are consistent with what we reported for Model 1 of Table 6, and this offers further support for the robustness of our findings.

Finally, we conduct the dynamic system GMM to further address the potential issues of omitted variables and dynamic and simultaneous endogeneity. Specifically, it uses internal instruments derived from lagged values of the independent and dependent variables to control for the existence of dynamic and simultaneous endogeneity (Blundell & Bond, 1998; Wintoki et al., 2012). To ensure the validation of the system GMM, we performed a number of tests, including first-order and second-order autocorrelation tests *AR* (1) and *AR* (2) and Hansen test. First, we find that the result of *AR* (1) reported in Table 7 (Model 3) is significant, whereas the result of *AR (*2) is insignificant, implying that the residuals in the equations are not serially correlated. Second, we use the Hansen test to test whether the model is over-identified and the results of Hansen test in Table 7 (Model 3) confirm the validation of all the instruments. As observed in Model 3 of Table 7, our variables have similar directional signs and level of significance, and hence our findings hold in the presence of possible different types of endogeneity problems.

Table 7 near here

5. Summary and conclusion

Despite the increasing demand for sound governance practices and the significant changes in government policy and funding landscape of UK higher education institutions (HEIs), there has been limited research investigating governance disclosures among UK HEIs. Therefore, this study timely explores the extent to which UK HEIs engage in voluntary governance disclosures, and consequently investigates whether internal governance mechanisms influence voluntary disclosures. Specifically, we investigate the impact of vice-chancellor characteristics (age, gender, education background and tenure) and governing board mechanisms (governing board ethnic/gender diversity, independence, meetings and the presence of a governance committee) on voluntary governance disclosures among 117 UK *HEIs*.

We find that the levels of governance disclosure among HEIs in the UK are significantly low compared to the findings of prior studies that have been conducted in similar-sized publicly traded corporations. We also find that vice-chancellor characteristics and governing board mechanisms have significant impact on voluntary governance disclosures. Specifically, we report positive and significant association among vice-chancellor tenure (*VCTEN*), governing board independence (*GBIND*), meetings (*GBMT*), the presence of a governance committee (*EGC*) and voluntary governance disclosures (*HEGI*). By contrast, we find that vice-chancellor age (*VCAGE*), and board diversity (*GBGED*) have negative association with the *HEGI*, whereas vice-chancellor gender (*VCGEN*) and education background (*VCEDU*) have no association with the *HEGI*.

Our findings have several practical implications for UK regulatory and enforcement bodies. For instance, our results reveal that governance disclosures differ significantly among HEIs in the UK and this may serve as an impetus for UK regulatory bodies and policy-makers to find ways to improve governance compliance/disclosure behaviour. To enhance compliance and disclosure of governance practices, the UK regulatory bodies (e.g., CUC, CSC, and

HEFCE) may consider setting-up an independent committee to monitor the implementation and disclosure of governance practices among UK HEIs. Further, the findings indicate that vice-chancellor gender diversity is not related to governance compliance/disclosure behaviour and this may be due to the fact that UK HEIs' boards are dominated by male vice-chancellors (i.e., 82.91%, see Table 4). This insignificant evidence may lead to policy reforms aimed at increasing the percentage and participation of female vice-chancellors in UK HEIs' boardrooms.

Additionally, our findings suggest that UK HEIs that have a separate governance committee tend to have better governance compliance and disclosure scores, and this may motivate regulators in the UK to develop new legislations that encourage UK HEIs to establish a separate governance committee in order to strengthen the implementation and disclosure of governance practices. In addition, the findings indicate that ethnic and gender diversity of the governing has significant negative relationship with governance compliance and disclosure score, and this may due to the fact that UK HEIs' boardrooms are dominated by white male governors. This evidence may lead to policy reforms that seek to increase female/ethnic minorities participation in top managerial positions within the UK HE sector.

Our findings can be generalised to other HEIs around the world due to the following reasons. First and although the UK higher education governance system is different from that of other European countries in that the former is characterised by the "market governance model", where HEIs are viewed as independent legal entities from central government and with greater financial autonomy. By contrast, HEIs in European countries are characterised by the "Napoleonic or Humboldtian governance models"[4], where the central government play strong

[4]According to Lazzeretti and Tavoletti (2006), HE governance models can be classified into three main models which are Napoleonic, Humboldtian and market models. In the first two models "Napoleonic/French model and Humboldtian/German model", higher education governance system is centralised due mainly to the fact that HEIs are funded largely by the government. In contrast, in the market model (Anglo-Saxon/American model), higher education governance system is less centralised and HEIs are granted the financial autonomy to promote competition, efficiency and effectiveness among them. Lazzeretti and Tavoletti (2006) suggest that the market

role in the leadership, regulation and funding of HEIs (De Boer et al., 2008). However, with the increasing number of private HEIs, competition, managerialism, financing constraints and market reforms in the HE sector (granting greater autonomy to HEIs), there is an increasing pressure on HEIs, not only in the UK, but also worldwide, to demonstrate greater accountability, governance, transparency and value for money in order to maintain sustainable operations (Lazzeretti & Tavoletti, 2006). Second, our governance disclosure framework can be generalised to other nations, as UK HE governance reforms are argued to have a strong influence on the development of governance guidelines/reports of many nations worldwide (Stott & White, 2015). For example, the UK has been at the forefront of developing a number of governance codes since 1995 for over 20 years, and hence, this study will have crucial implications for governance reforms, not only in the UK HE sector, but also worldwide.

Although our study is important as it provides early evidence on the levels and antecedents of governance disclosures among 117 UK HEIs, it suffers from the following limitations. First, the current study has only focused on governance disclosures among HEIs in the UK, where IFRS standards are adopted, and hence further research may offer new insights by extending our analysis by examining the levels and antecedents of voluntary governance disclosure in different international governance environments (such as Africa, America, Asia and Europe) and different accounting standards (such as the US GAAP). Second, the analysis of this study is limited to only internal provisions of governance, and hence we call for future studies to explore the effect of external provisions of governance on voluntary disclosures.

Third, our analysis is limited to 2014 and this is mainly due to the fact that, this year was the last year for which the required data was available when our data collection started. Therefore, our findings may not be generalisable to the subsequent years, particularly after the

model has recently become the most dominant governance model, not just in Europe, but also worldwide, and this is due to the increased uncertainty, operational complexity and competition in the HE sector.

revision of the UK HEI accounting standards in 2015 by the Financial Reporting Council (FRC). Future studies may extend our study by analysing the period following the revision of UK HEI accounting standards. Fourth and although we have employed a neo-institutional theoretical framework in interpreting our findings, we have not been able to explicitly attribute specific variables to specific aspects (e.g., efficiency and legitimation) of this theory in our current research. Opportunity, therefore, exists for future researchers to improve on our framing and research design by explicitly operationalising the variables into the specific (efficiency and legitimation) aspects of the neo-institutional theoretical framework. Finally, a quantitative research approach has been used in the current study, which is not capable of offering in-depth and more nuanced insights about the drivers of voluntary governance disclosures among HEIs. Thus, we suggest that further research may extend our analysis by employing qualitative data (e.g., case studies, which may also help in terms translating the neo-institutional theoretical framework into practice, as suggested above) to better understand the extent and determinants of governance disclosures among HEIs.

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Table 1. Study's sample

	Northern Ireland	Wales	Scotland	England	Pre-1992	Post-1992	No. HEIs
Total Sampled HEIs in UK	4	10	19	131	79	85	164
Less:							
HEIs with 1 year missing reports	1	1	1	16	8	11	19
HEIs with 2 years missing reports	0	1	0	15	7	9	16
HEIs with 3 years missing reports	0	0	0	5	2	3	5
HEIs with 4 years missing reports	0	0	0	0	0	0	0
HEIs with 5 years missing reports	0	0	1	0	1	0	1
HEIs with 6 years missing reports	0	0	1	5	3	3	6
Final (total) sample	**3**	**8**	**16**	**90**	**58**	**59**	**117**

Table 2. Research variables and definitions.

Governance index – dependent variables	
HEGI	Denotes the total HEI governance quality index containing 100 provisions based on 5 categories, including: 27 items on governing boards (GONB); 24 items on procedures and structures (PROS); 22 items on rewards, pay and evaluation of performance (PERW); 20 items on auditing and accountability (ACNA); and 7 items on stakeholder dialogue (STKD). A value of "1" is awarded to governance provisions that are disclosed in the annual reports of HEIs and 0 otherwise.
Internal governance mechanisms – explanatory variables	
VCGEN	Denotes vice chancellor (VC) gender, which is defined as a dummy variable that takes a value of 1 if the VC is male, 0 otherwise.
VCEDU	Denotes vice chancellor occupational background, which is defined as a continuous variable that is awarded a value between 1 and 6 (e.g., medicine, engineering, accounting/finance/business/management, social sciences, computing/maths/statistics, and humanities/natural sciences backgrounds). The natural logarithm is taken to normalise this variable.
VCAGE	Denotes vice-chancellor age. It is measured as the natural log of vice chancellor age.
VCTEN	Denotes vice-chancellor tenure. It is measured as the natural log of total number of years since a vice-chancellor of a HEI is appointed.
EGC	Denotes the availability of a governance committee, which is defined as a dummy variable that takes a value of 1, if a HEI has a governance committee, 0 otherwise.
GBGED	Denotes the proportion of female and non-white governors. It is computed as the percentage on women and ethnic minority in a HEI governing board.
GBIND	Denotes governing board independence, which is measured as the percentage of lay members in a governing board.
GBMT	Denotes the frequency of governors' meetings. It is computed as the natural log of a governing board number of meetings.
Controls (general HEI characteristics)	
GBZE	Denotes the size of governing board. It is computed as the natural log of the number a HEI inside and outside members on the governing board.
AFZE	Denotes the size of auditing firms. It is an indicator variable that equals 1 if a HEIs is audited by Deloitte, PwC, KPMG, and EY or 0 otherwise.
HEIAGE	Denotes the age of a HEI, which is measured as the natural log of the number of years since a HEI is established.
HEIZE	Denotes the size of a HEI, which is measured as the natural log of book total assets of the HEI. The total number of staff is also used as an alternative measure for HEIs size.
CFUND	Denotes funding council income (teaching income) to total income. It is measure as the proportion of total revenues from funding councils to total income.
PST92	Denotes universities established in the post 1992 era. It is an indicator variable that equals 1 if a HEI is established after 1992 or '0' otherwise.
RUSG	Denotes Russel Group of universities. It is an indicator variable that equals 1 for Russell Group universities or '0' otherwise.

UNI	Denotes university and non-university dummy that equals 1 if a HEI is not university or '0' otherwise.
LQUD	Denotes liquidity, which is measured as the ratio of net operating cash flow/total revenue.
CPEX	Denotes capital expenditure to total assets. It is measured as the ratio of total capital expenditure/book total assets.
LEVR	Denotes leverage, which is measured as the ratio of total debt/book total assets.
GRTH	Denotes total income growth. It is measured as the difference between total income of current and previous year divided by total income of the previous year.
RISK	Denotes risk, which is measured as the standard deviation of financial deficit and surplus to book total assets.
CNTRYD	Country dummies for each of the UK four countries, namely, Scotland, Wales, Northern Ireland and England.

Table 3. Descriptive statistics for the research variables (HEGI).

	All	2009	2010	2011	2012	2013	2014	Pre-1992 – Post-1992 Mean Diff.	Median Diff.
Panel 1: Overall HEIs governance disclosure (%)									
Mean	40.02	37.37	38.96	39.66	40.46	41.14	42.51	0.38	-
Median	40.00	36.00	39.00	39.00	40.00	41.00	42.00	-	1.00
STD	9.20	8.91	9.12	9.12	8.78	9.22	9.34	-	-
Minimum	8.00	10.00	8.00	8.00	10.00	10.00	10.00	-	-
Maximum	75.00	56.00	58.00	60.00	60.00	70.00	75.00	-	-
Panel 2: Governing board sub-index (%)									
Mean	52.65	49.51	51.66	52.20	53.47	53.88	55.21	-0.16	-
Median	55.56	51.85	55.56	55.56	55.56	55.56	55.56	-	0.00
STD	10.99	11.42	11.31	11.52	10.47	10.57	9.88	-	-
Minimum	14.81	14.81	14.81	14.81	18.52	18.52	18.52	-	-
Maximum	74.07	70.37	70.37	74.07	74.07	74.07	74.07	-	-
Panel 3: Processes & structures sub-index (%)									
Mean	31.52	29.17	30.16	31.13	31.87	32.69	34.12	-0.17	-
Median	29.17	29.17	29.17	29.17	29.17	33.33	33.33	-	-4.16**
STD	11.85	11.23	11.73	11.61	11.32	12.03	12.69	-	-
Minimum	0.00	0.00	0.00	0.00	4.17	4.17	4.17	-	-
Maximum	79.17	58.33	58.33	66.67	62.50	70.83	79.17	-	-
Panel 4: Performance, evaluation, remuneration and reward sub-index (%)									
Mean	24.98	23.23	24.09	24.67	25.17	25.84	26.88	1.19	-
Median	22.73	22.73	22.73	22.73	22.73	22.73	22.73	-	4.54**
STD	13.04	11.87	12.24	13.18	13.35	13.75	13.70	-	-
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Maximum	72.73	63.64	68.18	72.73	72.73	72.73	72.73	-	-
Panel 5: Audit & accountability sub-index (%)									
Mean	49.67	48.29	48.89	49.32	49.70	50.34	51.45	1.26	-
Median	50.00	50.00	50.00	50.00	50.00	50.00	50.00	-	0.00
STD	11.56	11.22	11.39	11.52	11.47	11.52	12.18	-	-
Minimum	0.00	0.00	0.00	0.00	5.00	5.00	5.00	-	-
Maximum	75.00	70.00	70.00	70.00	70.00	75.00	75.00	-	-
Panel 6: Dialogue with stakeholders & SR sub-index (%)									
Mean	40.07	31.87	38.46	40.05	41.39	42.74	45.91	-0.72	-
Median	42.86	28.57	42.86	42.86	42.86	42.86	42.86	-	0.00
STD	21.30	21.00	21.75	20.48	19.97	20.76	21.54	-	-
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Maximum	100.00	85.71	100.00	100.00	85.71	85.71	100.00	-	-

Table 4. Descriptive statistics for the research variables (explanatory and controls).

Variables	Mean	Median	Std. Dev.	Min	Max	Pre-1992 – Post-1992 Mean Diff.	Pre-1992 – Post-1992 Median Diff.
Panel 1: Eexplanatory variables (internal governance mechanisms)							
VCGEN (dummy)	82.91	100.00	37.67	0.00	100.00	-1.29	0.00
VCEDU (continuous)	4.33	4.00	1.74	1.00	6.00	-0.20***	-0.59***
VCAGE (years)	57.41	58.00	5.22	41.00	73.00	0.59	0.47
VCTEN (no.)	6.15	5.00	3.37	2.00	21.00	-0.56**	0.00
EGC (%)	17.24	0.00	37.80	0.00	100.00	-8.14***	-0.00***
GBGED (%)	31.74	30.56	11.30	5.26	65.52	-3.08***	-2.41***
GBIND (%)	55.25	56.71	15.03	7.69	95.65	-11.87***	-11.54***
GBMT (no.)	4.87	4.00	1.44	3.00	12.00	0.44***	1.00***
Panel2: Controls							
GBZE (no.)	23.49	23.00	4.86	11.00	39.00	2.72***	3.00***
AFZE (%)	73.50	100.00	44.16	0.00	100.00	26.40***	0.00***
HEIAGE (years)	85.29	43.00	143.98	2.00	918.00	122.45***	77.00***
HEIZE (£m)	330.33	228.26	375.92	2.78	3,033.40	222.90***	127.66***
CFUND (%)	32.77	32.18	12.15	6.95	72.00	-7.27***	-8.04***
PST92 (%)	48.00	0.00	50.00	0.00	100.00	-	-
RUSG (%)	21.00	0.00	40.40	0.00	100.00	-	-
LQUD (%)	2.02	1.23	5.72	-19.82	25.91	-1.04**	-1.23***
CPEX (%)	58.96	59.08	19.39	-73.05	98.04	3.43**	0.33
LEVR (%)	30.28	30.03	12.13	8.38	74.59	-2.05***	-3.92***
GRTH (%)	4.74	4.56	5.78	-11.70	44.36	0.58	0.86*
RISK (%)	1.30	0.86	1.43	0.00	9.62	-0.23**	-0.14

Notes: Please see Table 2 for full variable definitions. *** means significance at the 1% level ($p<0.01$). ** means significance at the 5% level ($p<0.05$). * means significance at the 10% level ($p<0.10$).

Table 5. Bivariate correlations for all 117 UK HEIs.

Variable	HEGI	VCGEN	VCEDU	VCAGE	VCTEN	EGC	GBZE	GBGED	GBIND	GBMT	AFZE	HEIAGE	HEIZE	CFUND	PST92	RUSG	LQUD	CPEX	LEVR	GRTH	RISK
HEGI		-0.01	0.02	-0.11***	0.03	0.18***	-0.10***	-0.09**	0.24***	0.23***	-0.15***	-0.01	0.03	0.10***	0.03	-0.06	0.02	0.01	0.02	-0.05	0.09**
VCGEN	0.04		0.06	0.06	-0.07	0.14***	0.01	-0.11***	0.04	-0.04	0.03	0.06	0.13***	-0.11***	0.02	0.08**	-0.06	-0.20***	-0.10**	-0.04	0.06
VCEDU	0.01	0.07*		0.03	-0.00	0.23***	0.01	-0.14***	0.08**	-0.06	-0.07**	-0.05	-0.19***	0.09**	0.14***	-0.10***	0.03	0.03	-0.01	0.05	0.07
VCAGE	-0.03	0.06	0.05		0.38***	-0.17***	-0.10***	0.06*	-0.01	-0.02	0.23***	0.14***	0.14***	-0.28***	-0.05	0.16***	0.02	-0.08*	-0.01	0.03	-0.04
VCTEN	0.07*	-0.06	0.02	0.36***		0.02	-0.03	0.02	0.07*	-0.07	0.09**	0.02	0.04	-0.18***	0.03	-0.02	0.07*	-0.13***	-0.01	0.07	0.00
EGC	0.18***	0.14***	0.23***	-0.16***	0.02		-0.12***	-0.07*	0.01	0.13***	-0.13***	-0.06	0.07*	0.02	0.11***	0.05	0.00	0.09**	-0.04	-0.09**	0.10***
GBZE	-0.03	0.02	0.00	-0.05	0.01	-0.14***		-0.13***	-0.31***	0.02	0.11***	0.24***	0.11***	-0.13***	-0.28***	0.19***	0.01	0.04	0.04	0.08**	-0.10**
GBGED	-0.09**	-0.10**	-0.11***	0.05	0.02	-0.08**	-0.09**		0.06	-0.05	-0.00	-0.10***	-0.05	-0.09**	0.12***	-0.08**	0.02	-0.03	0.03	-0.03	-0.00
GBIND	0.24***	0.03	0.09**	-0.04	0.10**	0.01	-0.30***	0.08**		-0.03	-0.28***	-0.38***	-0.26***	0.25***	0.41***	-0.21***	0.01	0.12***	0.15***	-0.07*	0.06
GBMT	0.17***	-0.02	-0.08**	0.02	-0.08*	0.10***	0.02	-0.09**	-0.13***		0.07*	0.15***	0.28***	-0.13***	-0.15***	0.24***	-0.07*	0.04	0.03	-0.05	0.06*
AFZE	-0.12***	0.03	-0.05	0.24***	0.08*	-0.13***	0.11***	-0.02	-0.27***	0.08**		0.26***	0.34***	-0.08**	-0.29***	0.18***	-0.03	-0.13***	-0.12***	-0.01	-0.09**
HEIAGE	0.01	0.05	-0.10***	0.10***	-0.03	-0.03	0.23***	-0.15***	-0.43***	0.22***	0.27***		0.40***	-0.42***	-0.76***	0.43***	-0.12***	-0.10**	-0.10***	0.02	-0.07*
HEIZE	0.06*	0.11***	-0.12***	0.14***	0.05	0.07*	0.08**	-0.06	-0.15***	0.16***	0.29***	0.30***		-0.43***	-0.30***	0.59***	-0.05	-0.15***	0.07*	-0.03	-0.08**
CFUND	0.06*	-0.12***	0.08**	-0.27***	-0.17***	0.02	-0.11***	-0.09**	0.25***	-0.14***	-0.07*	-0.38***	-0.39***		0.29***	-0.30***	0.05	0.09**	-0.07*	0.00	0.03
PST92	0.01	0.02	0.16***	-0.06	0.04	0.11***	-0.27***	0.14***	0.39***	-0.16***	-0.29***	-0.72***	-0.24***	0.30***		-0.40***	0.12***	-0.04	0.09**	-0.07*	0.06
RUSG	-0.04	0.08**	-0.17***	0.15***	-0.03	0.05	0.21***	-0.09**	-0.23***	0.25***	0.18***	0.42***	0.51***	-0.29***	-0.40***		-0.02	-0.13***	-0.04	0.04	-0.11***
LQUD	0.03	-0.07*	0.04	0.02	0.07	0.00	0.01	0.03	-0.00	-0.02	-0.03	-0.09**	-0.03	0.03	0.09**	-0.02		-0.04	0.01	0.05	0.04
CPEX	0.02	0.26***	0.09**	-0.00	-0.08*	0.09**	0.10**	-0.02	0.10**	0.02	-0.11***	-0.06	-0.08*	0.03	-0.09**	-0.08**	-0.01		0.20***	-0.01	0.11***
LEVR	0.01	-0.10**	-0.02	-0.04	-0.01	-0.03	0.04	0.07*	0.17***	-0.02	-0.13***	-0.15***	0.07*	-0.07*	0.08**	-0.03	0.02	0.09**		0.09**	0.03
GRTH	-0.06	-0.04	0.04	0.01	0.04	-0.07*	0.11***	-0.03	-0.05	-0.02	-0.03	0.02	-0.05	0.03	-0.05	0.02	0.02	0.01	0.11***		0.01
RISK	0.05	0.06*	0.06	-0.04	0.01	0.11***	-0.11***	-0.03	0.04	0.05	-0.12***	-0.08**	-0.12***	-0.00	0.08**	-0.12***	0.04	0.12***	0.05	-0.01	

Notes: Please see Table 2 for full variable definitions. Pearson's correlation coefficients are reported in the lower left side of the table, whereas Spearman's correlation coefficients are presented in the top right side of the table. *** means significance at the 1% level (p<0.01). ** means significance at the 5% level (p<0.05). * means significance at the 10% level (p<0.10).

Table 6. Effects of governance mechanisms on HEGI.

Dep. Variable	HEGI	VIF	GONB	VIF	PROS	VIF	PERW	VIF	ACNA	VIF
(*Model*)	(1)		(2)		(3)		(4)		(5)	
Explanatory variables (governance mechanisms)										
VCGEN	-0.00(.81)	1.25	0.00(.99)	1.25	0.02(.15)	1.25	-0.05(.00)***	1.25	0.03(.05)*	1.25
VCEDU	0.00(.93)	1.21	0.00(.83)	1.21	-0.01(.44)	1.21	-0.00(.90)	1.21	0.01(.48)	1.21
VCAGE	-0.09(.09)*	1.41	0.06(.37)	1.41	-0.19(.01)***	1.41	-0.18(.02)**	1.41	-0.10(.11)	1.41
VCTEN	0.02(.00)***	1.30	0.01(.34)	1.30	0.03(.00)***	1.30	0.02(.11)	1.30	0.03(.00)***	1.30
EGC	0.04(.00)***	1.26	0.03(.03)**	1.26	0.04(.01)***	1.26	0.05(.00)***	1.26	0.03(.02)**	1.26
GBGED	-0.06(.04)**	1.09	-0.08(.04)**	1.09	-0.04(.35)	1.09	-0.16(.00)***	1.09	-0.06(.12)	1.09
GBIND	0.14(.00)***	1.47	0.18(.00)***	1.47	0.16(.00)***	1.47	0.16(.00)***	1.47	0.13(.00)***	1.47
GBMT	0.05(.00)***	1.16	0.06(.00)***	1.16	0.03(.14)	1.16	0.07(.00)***	1.16	0.04(.03)**	1.16
Controls										
GBZE	-0.00(.84)	1.27	-0.05(.03)**	1.27	0.03(.25)	1.27	0.09(.00)***	1.27	-0.05(.05)*	1.27
AFZE	-0.03(.00)***	1.34	-0.03(.01)**	1.34	-0.04(.00)***	1.34	-0.03(.09)*	1.34	-0.02(.20)	1.34
HEIAGE	0.01(.01)**	2.62	0.01(.41)	2.62	0.02(.00)***	2.62	0.00(.92)	2.62	0.02(.00)***	2.62
HEIZE	0.02(.00)***	1.61	0.02(.00)***	1.61	0.02(.00)***	1.61	0.01(.05)*	1.61	0.02(.00)****	1.61
CFUND	0.12(.00)***	1.52	0.09(.07)*	1.52	0.20(.00)***	1.52	0.18(.00)***	1.52	0.21(.00)***	1.52
PST92	-0.01(.53)	2.48	-0.02(.19)	2.48	0.00(.88)	2.48	-0.02(.37)	2.48	-0.03(.04)**	2.48
RUSG/UNI	-0.04(.00)***	1.84	-0.04(.00)***	1.84	-0.07(.00)***	1.84	-0.02(.28)	1.84	-0.05(.00)***	1.84
LQUD	0.07(.28)	1.03	-0.02(.84)	1.03	0.06(.51)	1.03	0.10(.30)	1.03	0.06(.46)	1.03
CPEX	-0.03(.11)	1.26	-0.05(.04)**	1.26	-0.01(.78)	1.26	-0.01(.78)	1.26	-0.06(.03)**	1.26
LEVR	-0.03(.45)	1.21	0.03(.44)	1.21	-0.02(.59)	1.21	-012(.02)**	1.21	-0.00(.93)	1.21
GRTH	0.00(.96)	1.04	-0.07(.45)	1.04	0.01(.96)	1.04	0.00(.98)	1.04	-0.03(.77)	1.04
RISK	0.02(.95)	1.10	0.19(.58)	1.10	0.08(.84)	1.10	0.13(.75)	1.10	-0.14(.69)	1.10
CNTRYD	-	-	-	-	-	-	-	-	-	-
Constant	0.38	-	0.09	-	0.42	-	0.42	-	0.54*	-
Dur-Wat.	1.75	-	1.78	-	1.76	-	1.79	-	1.90	-
F- value	6.03***	-	4.69***	-	5.33***	-	5.62***	-	5.31***	-
Adj. R^2	0.16	-	0.13	-	0.15	-	0.15	-	0.14	-
No.	702	-	702	-	702	-	702	-	702	-

Notes: Model 1 seeks to test for the influence of the five explanatory variables on the overall governance disclosure index (HEGI). Models 2-6 reveal the results relating to the effect of the five explanatory variables on each sub-indices (governing board, procedures & structures, rewards, pay and evaluation of performance, auditing and accountability, stakeholder dialogue, respectively). Model 7 reveals the results relating to the weighted HEGI (WHEGI). In Model 8, the total number of staff is used as an alternative measure for HEIs size. In Model 9 RG dummy variables is replaced with university and non-university dummy. Model 10 includes a dummy variable for the UK four countries (*CNTRYD*), namely, Scotland, Wales, Northern Ireland and England. Please see Table 2 for full variable definitions. *** means significance at the 1% level (p<0.01). ** means significance at the 5% level (p<0.05). * means significance at the 10% level (p<0.10).

Table 6 (Continued). Effects of governance mechanisms on HEGI.

Dep. Variable (*Model*)	STKD (6)	VIF	WHEGI (7)	VIF	HEGI (8)	VIF	HEGI (9)	VIF	HEGI (10)	VIF
Explanatory variables (governance mechanisms)										
VCGEN	-0.03(.23)	1.25	-0.01(.56)	1.24	-0.00(.76)	1.24	-0.01(58)	1.23	-0.00(.71)	1.29
VCEDU	0.01(.41)	1.21	0.00(.71)	1.21	0.00(.89)	1.22	-0.00(.72)	1.28	0.00(.66)	1.25
VCAGE	0.09(.44)	1.41	-0.07(.21)	1.41	-0.08(.11)	1.42	-0.11(.02)**	1.35	-0.18(.00)***	1.47
VCTEN	0.05(.01)**	1.30	0.03(.00)***	1.30	0.03(.00)***	1.30	0.03(.00)***	1.28	0.04(.00)***	1.34
EGC	0.06(.02)**	1.26	0.04(.00)***	1.26	0.04(.00)***	1.25	0.04(.00)***	1.27	0.04(.00)***	1.30
GBGED	-0.23(.00)***	1.09	-0.02(.48)	1.09	-0.07(.04)**	1.10	-0.07(.04)**	1.11	-0.02(.54)	1.12
GBIND	-0.11(.13)	1.47	0.10(.00)***	1.47	0.14(.00)***	1.51	0.14(.00)***	1.48	0.10(.00)***	1.51
GBMT	0.05(.18)	1.16	0.05(.00)***	1.16	0.04(.00)***	1.17	0.04(.00)***	1.13	0.01(.34)	1.21
Controls										
GBZE	-0.12(.01)**	1.27	-0.02(.35)	1.27	-0.00(.80)	1.26	-0.01(.50)	1.23	-0.02(.33)	1.32
AFZE	-0.06(.01)**	1.34	-0.04(.00)***	1.34	-0.03(.00)***	1.41	-0.03(.00)***	1.39	-0.02(.00)***	1.37
HEIAGE	0.03(.02)**	2.62	0.01(.00)***	2.63	0.01(.02)**	2.67	0.01(.04)**	2.64	0.01(.21)	2.80
HEIZE	0.04(.00)***	1.61	0.01(.17)	1.61	0.01(.11)	2.30	0.01(.05)*	1.51	0.01(.02)**	1.63
CFUND	-0.46(.00)***	1.52	0.04(.27)	1.52	0.11(.00)***	1.53	0.12(.00)***	1.54	-0.03(.36)	1.91
PST92	0.09(.00)***	2.48	0.01(.62)	2.49	-0.01(.42)	2.57	0.00(.99)	2.48	-0.01(.42)	2.56
RUSG/UNI	0.05(.07)*	1.84	-0.02(.04)**	1.84	-0.03(.01)***	2.17	0.01(.63)	1.52	-0.02(.02)**	1.85
LQUD	0.36(.02)**	1.03	0.11(.09)*	1.03	0.07(.25)	1.03	0.06(.34)	1.03	0.01(.90)	1.03
CPEX	-0.05(.29)	1.26	-0.04(.09)*	1.25	-0.04(.04)**	1.28	-0.02(.26)	1.30	-0.01(.45)	1.29
LEVR	-0.02(.78)	1.21	-0.03(.43)	1.21	-0.02(.53)	1.21	-0.02(.60)	1.26	-0.06(.03)**	1.24
GRTH	0.35(.04)**	1.04	0.05(.47)	1.04	0.00(.99)	1.04	-0.00(.96)	1.05	0.01(.90)	1.05
RISK	-0.73(.28)	1.10	-0.10(.74)	1.10	0.02(.93)	1.10	0.09(.74)	1.10	0.19(.41)	1.12
CNTRYD	-	-	-	-	-	-	-	-	Included	-
Constant	0.80	-	0.45*	-	0.49**	-	0.60***	-	1.07***	-
Dur-Wat.	2.05	-	1.68	-	1.74	-	1.79	-	1.86	-
F- value	6.54***	-	4.97***	-	5.63***	-	5.45***	-	15.96***	-
Adj. R^2	0.18	-	0.13	-	0.15	-	0.15	-	0.40	-
No.	702	-	702	-	702	-	702	-	702	-

Notes: Model 1 seeks to test for the influence of the five explanatory variables on the overall governance disclosure index (HEGI). Models 2-6 reveal the results relating to the effect of the five explanatory variables on each sub-indices (governing board, procedures & structures, rewards, pay and evaluation of performance, auditing and accountability, stakeholder dialogue, respectively). Model 7 reveals the results relating to the weighted HEGI (WHEGI). In Model 8, the total number of staff is used as an alternative measure for HEIs size. In Model 9 RG dummy variables is replaced with university and non-university dummy. Model 10 includes a dummy variable for the UK four countries (*CNTRYD*), namely, Scotland, Wales, Northern Ireland and England. Please see Table 2 for full variable definitions. *** means significance at the 1% level (p<0.01). ** means significance at the 5% level (p<0.05). * means significance at the 10% level (p<0.10).

Table 7. Additional analyses.

Dep. Variable (*Model*)	Lagged-effects (1)	Fixed-effects (2)	System-GMM (3)
Explanatory variables (internal governance mechanisms)			
VCGEN	-0.01(.44)	0.02(.11)	-0.04(.00)***
VCEDU	0.01(.49)	0.02(.01)***	0.01(.20)
VCAGE	-0.09(.08)*	-0.11(.03)**	-0.10(.00)***
VCTEN	0.02(.00)***	0.04(.00)***	0.01(.19)
EGC	0.03(.00)***	0.03(.02)**	0.06(.00)***
GBGED	-0.05(.19)	-0.06(.00)***	-0.05(.00)***
GBIND	0.13(.00)***	0.07(.00)***	0.03(.08)*
GBMT	0.05(.00)***	0.02(.00)***	0.01(.26)
Controls			
GBZE	-0.01(.77)	-0.02(.34)**	0.01(.11)
AFZE	-0.04(.00)***	-0.08(.00)***	-0.02(.02)**
HEIAGE	0.01(.04)**	0.04(.00)***	0.00(.77)
HEIZE	0.01(.00)****	0.05(.00)***	0.01(.01)**
CFUND	0.13(.00)***	0.11(.00)***	-0.05(.00)***
PST92	-0.01(.50)	-0.02(.07)*	-0.03(.00)***
RUSG	-0.03(.00)***	-0.10(.00)***	0.01(.61)
LQUD	0.03(.64)	0.04(.36)	0.16(.00)***
CPEX	-0.04(.10)	-0.05(.0.04)**	-0.05(.00)***
LEVR	-0.04(.25)	-0.03(.27)	0.00(.95)
GRTH	0.01(.90)	0.05(.20)	-0.01(.62)
RISK	0.40(.18)	0.15(.34)	0.15(.30)
Lagged-HEGI	-	-	0.73(.00)***
Constant	0.44*	-0.08	0.30(.04)**
Dur-Wat.	1.92	1.85	-
F- value	5.36***	17.81***	90.45***
Adj. R^2	0.16	0.75	-
AR (1) test	-	-	0.00
AR (2) test	-	-	0.16
Hansen *P*-value	-	-	0.50
Hansen (Diff) *P*-value	-	-	0.63
Obs.	585	702	702

Notes: Please see Table 2 for full variable definitions. *** means significance at the 1% level (p<0.01). ** means significance at the 5% level (p<0.05). * means significance at the 10% level (p<0.10).

Appendix. Higher Education Institution Governance Index (HEGI)

HEGI theme	HEGI items: information on/ reference to	Scoring
Board Governance Sub-Index	1. Frequency of governing board meetings.	0-1
	2. Statement of governing board primary roles, plans, strategic appointments and mission.	0-1
	3. Independence of governing board chairperson.	0-1
	4. Governing board members are sensitive to the views of others (inside and outside board meetings), debate constructively, question intelligently and make fair decisions for the best of their intuitions.	0-1
	5. Compliance with best governance practices, including committee of university chairs governance code.	0-1
	6. Classification of governing board members into independent (lay) and non-independent (non-lay) governors.	0-1
	7. Governing board diversity (i.e., gender diversity).	0-1
	8. Diversity of governing board to avoid groupthink along legal and moral expectation.	0-1
	9. Frequency of participation of staff and student members.	0-1
	10. Role duality of the VC and chairperson.	0-1
	11. Governing board of not more than 25 members.	0-1
	12. Majority of governing board members are independent.	0-1
	13. Governing board membership is disclosed.	0-1
	14. Governing board members' attendance of meetings is disclosed.	0-1
	15. Quorum requirements is disclosed.	0-1
	16. Non-quoration meeting procedure is disclosed.	0-1
	17. Governing board members share the accountability/responsibility for the success of their institutions.	0-1
	18. Governing board members share the accountability/responsibility for risk management, internal control and the governance of their institutions.	0-1
	19. Governing board frequently review the delegated authority to the accountable officer.	0-1
	20. Approval and disclosure of ethical policy.	0-1
	21. Disclosure of information relating to whistleblowing policy.	0-1
	22. Benchmarking of institutional practices/policies against sector practices and/or external requirement.	0-1
	23. Disclosure of information relating to institution's strategic plan.	0-1
	24. Accessing institutions sustainability (i.e., key performance indicators on financial sustainability) by the governing board.	0-1
	25. Respecting and understanding the principle of academic freedom by the governing board.	0-1
	26. Disclosure of information relating to equality and diversity legislation.	0-1
	27. Disclosure of information relating to governing board members' biographical details, responsibilities and experience.	0-1
Structure and Procedure Sub-Index	28. Reviewing compliance with regulations/laws.	0-1
	29. Reviewing the utilisation of public fund.	0-1
	30. Reviewing procedures to oversee conflicts of interest and ensure high standard behaviour among board members.	0-1
	31. Whether the plans for the orderly succession of governors is disclosed.	0-1
	32. Governors' re-elections are held based on satisfactory performance.	0-1
	33. Whether governors' terms of office is disclosed.	0-1
	34. Whether the remuneration packages of senior officers, including VCs, are disclosed.	0-1
	35. Reviewing procedures to ensure supplying timely and appropriate information to the governing board/committee.	0-1
	36. Reviewing procedures to ensure providing appropriate training to governing board members, including induction for new members.	0-1

	37. Governors' access to independent professional advice.	0-1
	38. The existence of the HEI secretary's office.	0-1
	39. Procedures to ensure the operation of the student unions/associations in a financially sustainable, accountable and democratic environment.	0-1
	40. The existence of sustainable arrangements for the continuation of business in the absence of the chair.	0-1
	41. Students have integral role in enhancing teaching.	0-1
	42. Responsibilities/roles of governing board members are disclosed.	0-1
	43. The existence of a nomination committee.	0-1
	44. Composition of a nomination committee (governing board's chair, at least 3 independent governors, the head of institution, and a senior academic).	0-1
	45. The chair of the governing board also chairs the nomination committee.	0-1
	46. Nomination committee membership is disclosed.	0-1
	47. Nomination committee members attendance of the meetings is disclosed.	0-1
	48. Nomination committee's terms of reference is disclosed.	0-1
	49. Reviewing the performance/effectiveness of nomination committee.	0-1
	50. Nomination committee meetings (at least 4 times in a year).	0-1
	51. The participation of staffs/students in selecting the principle, chair and the lay committee members.	0-1
Rewards, Pay & Evaluation of Performance Sub-Index	52. Evaluation of CEO's (vice-chancellor, principal, provost, etc) performance.	0-1
	53. Evaluation of governing board chair's performance.	0-1
	54. Evaluation of the governing board/governors' performance.	0-1
	55. Evaluation of governing board's committees' performance.	0-1
	56. Review of effectiveness (regular, full, robust) against the HE code and the statutory responsibility.	0-1
	57. Annual review of the governance structure along institutions key performance indicators.	0-1
	58. Externally facilitated evaluations (at least every five years).	0-1
	59. The existence of a remuneration committee.	0-1
	60. Composition of a remuneration committee (governing board's chair, at least 3 independent governors and the independent treasurer).	0-1
	61. Independence of the remuneration committee's chairperson.	0-1
	62. Remuneration committee membership is disclosed.	0-1
	63. Remuneration committee members attendance of the meetings is disclosed.	0-1
	64. Remuneration committee's terms of reference is disclosed.	0-1
	65. Remuneration committee meetings (at least 4 times in a year).	0-1
	66. Reviewing the performance/effectiveness of remuneration committee.	0-1
	67. Reviewing the capability of remuneration committee's members.	0-1
	68. Reviewing remuneration committee's procedures relating to determining senior officers' pay.	0-1
	69. Review procedures to ensure appropriate pay packages.	0-1
	70. Procedures to ensure that public interest is considered and aligned with the institutional interest.	0-1
	71. Explicit pay policy framework is set based on funding bodies' guidance.	0-1
	72. Annual evaluation of a HEI's performance by the governing board to ensure that both short-term and long-term strategic objectives are achieved.	0-1
	73. Disclosure of the remuneration philosophy relating to senior management team.	0-1

Accountability & Auditing Sub-Index	74. The existence of an audit committee.	0-1
	75. Composition of an audit committee (at least 3 independent governors and co-opted members with relevant expertise or interest who are not members of the governing board).	0-1
	76. Independence of the audit committee's chairperson.	0-1
	77. Audit committee membership is disclosed.	0-1
	78. Audit committee members attendance of the meetings is disclosed.	0-1
	79. Audit committee's terms of reference is disclosed.	0-1
	80. Reviewing the performance/effectiveness of the audit committee.	0-1
	81. Sound control systems are in place.	0-1
	82. Disclosure of information relating to risk management procedures.	0-1
	83. Existence of internal audit unit.	0-1
	84. Internal audit function is disclosed.	0-1
	85. Statement of a HEI's going concern is disclosed.	0-1
	86. Experience of audit committee members (at least one member with relevant and recent experience in accounting, auditing or finance).	0-1
	87. Audit committee meetings (at least 4 times in a year).	0-1
	88. The presentation of a balanced and understandable annual report.	0-1
	89. The governing board is responsible for the preparation of annual accounts.	0-1
	90. Compliance with Nolan Principle.	0-1
	91. Fulfilling funding councils' requirements.	0-1
	92. Reviewing the capability of audit committee by the governing board.	0-1
	93. The terms of reference on roles of audit committee are written/agreed by the governing board.	0-1
Stakeholder Dialogue Sub-Index	94. Disclosure of information relating to communication channels with powerful stakeholders.	0-1
	95. Disclosure of information relating to health and safety of employees.	0-1
	96. Disclosure of information relating to environmental issues.	0-1
	97. Narrative disclosure on social responsibilities/investments and community support.	0-1
	98. National community service.	0-1
	99. International community service.	0-1
	100. Disclosure of information relating to alumni participation/involvement and activities.	0-1