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Governance structures, voluntary disclosures and public accountability

The case of UK higher education institutions

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Abstract

Purpose – The purpose of this paper is to investigate the extent of voluntary disclosures in UK higher education institutions' (HEIs) annual reports and examine whether internal governance structures influence disclosure in the period following major reform and funding constraints.

Design/methodology/approach – The authors adopt a modified version of Coy and Dixon's (2004) public accountability index, referred to in this paper as a public accountability and transparency index (PATI), to measure the extent of voluntary disclosures in 130 UK HEIs' annual reports. Informed by a multi-theoretical framework drawn from public accountability, legitimacy, resource dependence and stakeholder perspectives, the authors propose that the characteristics of governing and executive structures in UK universities influence the extent of their voluntary disclosures.

Findings – The authors find a large degree of variability in the level of voluntary disclosures by universities and an overall relatively low level of PATI (44 per cent), particularly with regards to the disclosure of teaching/research outcomes. The authors also find that audit committee quality, governing board diversity, governor independence and the presence of a governance committee are associated with the level of disclosure. Finally, the authors find that the interaction between executive team characteristics and governance variables enhances the level of voluntary disclosures, thereby providing support for the continued relevance of a "shared" leadership in the HEIs' sector towards enhancing accountability and transparency in HEIs.

Research limitations/implications – In spite of significant funding cuts, regulatory reforms and competitive challenges, the level of voluntary disclosure by UK HEIs remains low. Whilst the role of selected governance mechanisms and "shared leadership" in improving disclosure, is asserted, the varying level and selective basis of the disclosures across the surveyed HEIs suggest that the public accountability motive is weaker relative to the other motives underpinned by stakeholder, legitimacy and resource dependence perspectives.

Originality/value – This is the first study which explores the association between HEI governance structures, managerial characteristics and the level of disclosure in UK HEIs.

Keywords Governance, UK, Universities, Disclosure, Accountability, Higher education institutions

Paper type Research paper

Introduction

Globally, the past decades have witnessed rapid changes and/or reforms in the higher education (HE) sector (Bennett, 2002; Taylor, 2013a, b). In particular, increasing student numbers, declining central government funding, tightening regulation, expanding academic curricula and non-academic activities, more discerning and demanding multiple

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stakeholders, increasing national and international competition, creeping "managerialism" of academic work/output, un-relenting "commoditisation" of the academic service and increasing "corporatisation" of higher education institutions (HEIs), amongst others, have been widely acknowledged (Shattock, 1998, 1999; Dearlove, 2002; Toma, 2007; Kim, 2008; Trakman, 2008; Parker, 2011; Middlehurst, 2013; Parry, 2013; Rowlands, 2013; Taylor, 2013a, b). Equally noticeable is that these public sector and HEI reforms have brought to the fore issues of financial management through internal governance, public accountability and transparency and performance within HEIs worldwide (Coy *et al.*, 1994, 1997; Jones *et al.*, 2001; Oxholm, 2005; Hordern, 2013), and concurrently concerns about the financialisation of HEIs (Nagy and Robb, 2008; Parker, 2013). Observably, the UK has been at the forefront of such internal governance reforms (Robins, 1963; Jarratt, 1985; Nolan, 1995/1996; Dearing, 1997; Lambert, 2003; Browne, 2010). However, drastic cuts in the further and HE budget of about 29 per cent in 2010 by the UK Central Government following the 2007/2008 global banking crisis and the subsequent implementation of the recommendations of the Browne's (2010) report on HE funding and student finance has further heightened the importance of financial management, governance, and accountability within UK HEIs (Hordern, 2013; Middlehurst, 2013; Rowlands, 2013; Taylor, 2013a, b), thereby offering an interesting and natural setting to examine these aspects. The key aims of this paper, therefore, are to: investigate the public accountability and transparency of UK HEIs by focussing on the extent of voluntary disclosures in their annual reports[1]; and examine whether internal governance structures influence the level of disclosures by such institutions in the face of recent HEI reforms, especially those that have been akin to the introduction of "market" or "quasi-market" conditions.

Theoretically, we suggest that HEIs and their managers and governing board members may commit to a greater extent of voluntary disclosure for a number of reasons. First, the public accountability perspective suggests that managers are inherently trustworthy with greater commitment towards public accountability and transparency, and thus are more likely to engage in voluntary disclosure (Donaldson and Davis, 1991, 1994; Coy *et al.*, 2011). Second, according to legitimacy theory-based predictions (Ashforth and Gibbs, 1990; Suchman, 1995), increased voluntary disclosure can be a strategic means by which HEIs can demonstrate congruence of their goals and norms with those of the larger society (Reverte, 2009; Chen and Roberts, 2010), with positive consequences for institutional reputation, image and public goodwill. Third, stakeholder theory predicts that increased levels of voluntary disclosure conveys commitments to greater accountability and transparency (Gordon *et al.*, 2002; Nelson *et al.*, 2003; Coy and Dixon, 2004), which may be an important way of winning the support of powerful stakeholders, such as students, parents, funding bodies, research councils, government, employers and employees (Freeman and Reed, 1983; Freeman, 1984; Donaldson and Preston, 1995; Michelon and Parbonetti, 2012), whose contributions are critical to the long-term viability of HEIs. Fourth, resource dependence theory predicts that increased voluntary disclosure (Coy *et al.*, 1991; Cutt *et al.*, 1993; Vidovich and Currie, 2011) can help in granting HEIs access to important resources, such as donations, funds, reduced political costs through enhanced institutional image and reputation (Pfeffer and Salancik, 1978; Branco and Rodrigues, 2006; Chen and Roberts, 2010). In sum, whilst public accountability and legitimacy theories primarily conceptualise the broader "social" duties and responsibilities of public sector HEIs and how voluntary disclosures seek to reflect such duties and responsibilities, resource dependence and stakeholder perspectives tend to be more directly concerned with the instrumental benefits (e.g. student income, research funding, donations and corporate support) that may be derived from providing voluntary disclosures. Theoretically, we contend that the recent pressures and reforms highlighted by some of the previously mentioned studies seem to offer support for the increasing relevance of the last two theoretical strands in explaining the extent of voluntary disclosures in the HEI sector. In light of the potential multiplicity of rationales underlying the use of voluntary disclosures, we contend, therefore, that the ability of any single theoretical framework to explain the numerous motivations for engaging in voluntary disclosures will be limited, and hence, arguably justifying the use of a multi-theoretical framework.

The extant literature has explored governance, accountability and transparency issues within UK HEIs (Gray and Haslam, 1990; Banks *et al.*, 1997; Coy and Pratt, 1998; Sizer and Howells, 2000; Jones *et al.*, 2001; Parry, 2013; Taylor, 2013a, b). However, we argue there are a number of research gaps. First, existing studies are mainly normative in nature – usually offering critical reflections on the extensive HE policy reforms and changes, but often with limited empirical/anecdotal insights (Shattock, 1998, 1999, 2002, 2004; Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Oxholm, 2005; Toma, 2007; Kim, 2008; Trakman, 2008; Melville-Ross, 2010; Hordern, 2013). Whilst such critical reflections are generally helpful in understanding governance and accountability reforms in the HE sector, their insights are impaired by an inability to offer large-scale empirical insights on the direct impact of such reforms on HEIs to governments, policy makers and regulatory authorities. Second, and although there are a limited number of empirical studies on HEI voluntary disclosure (Coy *et al.*, 1991, 1994, 1997; Dixon *et al.*, 1991; Cutt *et al.*, 1993; Banks *et al.*, 1997; Coy and Pratt, 1998; Gordon *et al.*, 2002; Committee of University of Chairmen (CUC) 2000/2006, 2001; Kezar, 2006; Maingot and Zeghal, 2008), there has been scant attention to the UK, and other studies have either been largely descriptive/qualitative in orientation with limited theoretical insights or have focussed primarily on investigating how general institutional-level characteristics, such as size and turnover affect the level of voluntary disclosure (Gray and Haslam, 1990; Coy *et al.*, 2011; Maingot and Zeghal, 2008). In addition, and despite the increasing evidence that organisational disclosure decisions, including voluntary ones are largely driven by top management teams (Eng and Mak, 2003; Collett and Hrasky, 2005; Barako *et al.*, 2006a, b; Beekes and Brown, 2006), studies examining how an HEI's internal governance mechanisms may influence its disclosure are rare (Gordon *et al.*, 2002). Arguably, this impairs the current understanding of why and how internal governance structures might enhance or limit voluntary disclosures, particularly in the UK context, where there has been significant efforts to "modernise" governance structures and standards in HEIs on the basis of private-sector models (Schofield, 2009; Parker, 2011).

Hence, the current study seeks to address the above gaps, as well as make a number of new contributions to the existing HEI governance and accounting literature. First, and using a modified version of Coy and Dixon's (2004) public accountability index (PAI) we contribute to the literature by providing contemporary evidence on the level of voluntary disclosure by UK HEIs. This extends the findings of prior studies that provide descriptive accounts of the level of disclosure HEIs, particularly in the case of the UK (Gray and Haslam, 1990; Banks *et al.*, 1997). To the best of our knowledge, it also appears that the PAI has never been applied within the UK HEI context and this study will thus provide a relatively robust benchmark to compare with future studies relying on this index or findings from other countries. Second, we contribute to the literature by examining the extent to which a HEI's internal governance structure may influence its voluntary disclosure in an HE setting characterised by corporate governance developments, recent funding constraints and student access reforms. Arguably, this provides an important extension of, and improvement in, previous studies (Banks *et al.*, 1997; Nelson *et al.*, 2003; Maingot and Zeghal, 2008) that have only explored how HEI-specific features, such as turnover and size, affect disclosure. The leadership and oversight roles of governing boards in the UK has been under scrutiny for some time, initially in relation to selected institutional failures, but more recently in view of competitive, accountability and strategic challenges faced by HEIs, and the question remains as to whether governing boards can contribute effectively towards addressing such challenges (Dearing, 1997; Shattock, 2002, 2004; Oxholm, 2005; Browne, 2010; Middlehurst, 2004, 2013; Havergal, 2015a).

Relatedly, governance arrangements in HEIs are traditionally seen to be a "shared" one, usually involving close interactions among three main bodies, namely the governing council (the board), the senate (the academic arm), and the senior executive management team (primarily the vice-chancellor (VC) and his/her team) (Shattock, 1998, 1999; Bennett, 2002; Dearlove, 2002; Toma, 2007). However, this governance model has been observed to under threat in the UK and elsewhere (Parker, 2011; Taylor, 2013a). Based on the empirical results, our contention is that the impact of internal governance structures on voluntary disclosure may be enhanced when these governance structures are interacted rather than being on their own. Thus, our third distinctive contribution to the literature lies in providing evidence supporting the moderating effect of internal governance mechanisms, and by extension the "shared" governance model on voluntary disclosure.

The remainder of the paper is structured as follows. The next section discusses governance structures and reforms that have been pursued within the UK HE sector. The following sections present a multi-theoretical framework underpinning the study of voluntary disclosures, discuss the governance and voluntary disclosure literature, outline the research design and present the empirical analyses, with the concluding remarks containing a summary and a discussion of the policy implications and wider considerations for the HEI sector.

Governance structures and funding reforms within the UK HEI context

It has been widely acknowledged that the UK has been at the forefront of HE sector policy reforms with particular focus on promoting sound financial management via good internal governance arrangements, greater public accountability and transparency and stronger performance (Jones *et al.*, 2001; Oxholm, 2005; Toma, 2007; Vidovich and Currie, 2011; Parker, 2012; Rowlands, 2013). In fact, there is a track record of extensive and sustained HE reforms in the UK, often engendered by new public management (NPM) discourses and/or central government funding cuts (Robins, 1963; Jarratt, 1985; Educational Reform Act (ERA), 1988; Further and Higher Education Act (FHEA), 1992; Nolan, 1995/1996; Dearing, 1997; Teaching and Higher Education Act, 1998; Lambert, 2003; Higher Education Act, 2004; Browne, 2010). However, until the 1900s, HEIs in the UK, especially universities had been considered autonomous liberal institutions whose primary aim had been the production and transmission of knowledge for "its own sake" (Shattock, 1998, 1999; Middlehurst, 2004). Central to this liberal or traditional view is that unbridled university autonomy and academic freedom were fundamental to their capacity to produce, preserve and transmit knowledge and values on which civilised societies depended (Bennett, 2002; Shattock, 2002, 2004; Middlehurst, 2004, 2013). Thus, academic ("professorial") opinion was "supreme" with UK HEIs being in the main able to successfully resist external economic, political and social pressures of the time (Dearlove, 2002; Knight, 2002; Kim, 2008; Trakman, 2008). Consequently, HEIs internal governance arrangements were structured to ensure that the traditional view thrived. Specifically, HEIs were set up by royal charters with collegial or faculty governance structures (Trakman, 2008), in which academic authority was "supreme", with senior academics taking strategic and operational decisions, as well as assuming leadership and management positions, including chairing every major committee (Sizer and Howells, 2000; Middlehurst, 2004). Whilst in theory, a two-tier governance structure, consisting of the senate formed entirely by academics, including the incumbent VC with academic powers, and the governing council (court in Scotland), which included lay or independent governors (IGOV) with broad policy and administrative powers (Shattock, 2002, 2004), in practice, the council was largely a titular body whose function had been reduced effectively to that of an approval body (Dearlove, 2002; Knight, 2002;

Middlehurst, 2013; Parry, 2013). In effect, UK HEIs, especially universities were self-governing institutions, often espousing "academic democracy[2]" through collegial and senior faculty "shared" governance model with limited external regulation and less demand for public accountability and transparency (Taylor, 2013a).

The liberal concept of UK HEI governance went unchallenged until 1919 when the University Grants Committee was established by the government with the power of determining and granting university status with direct administrative and financial oversight over HEIs through its research council (which later became funding councils) (Bennett, 2002; Dearlove, 2002; Knight, 2002). However, tighter direct external control and state regulation did not start until the publication of the influential Robins' (1963) report on HE (Middlehurst, 2004; Shattock, 2002, 2004; Kim, 2008). The Robins report recommended substantial expansion of the HE sector by upgrading a large number of former technical institutes, further educational colleges and vocational institutions into tertiary institutions or HEIs, with its suggestions arguably forming the main backbone for the development of the university sector till present (Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Middlehurst, 2013)[3]. In effect, the Robins report promoted a neo-liberal view of higher education as an alternative to the then dominant liberal ideology. Specifically, neo-liberalism emphasised learning for instrumental and vocational purposes in contrast to the liberal view that focussed mainly on the intrinsic value of learning (Sizer and Howells, 2000; Bennett, 2002; Middlehurst, 2004, 2013). Thus, the Robins report viewed education as an economic resource that needed to be exploited to support economic development. As such, it required a new kind of HEIs – polytechnics/colleges, which can provide vocational, professional and industrially relevant HE programmes, that were distinct from the academically oriented courses offered by their liberal counterparts (Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Shattock, 2002, 2004; Kim, 2008; Trakman, 2008; Middlehurst, 2004, 2013).

However, whilst the Robins report had introduced economic instrumentalism and mass education into the UK HE sector, the polytechnics/colleges unlike their liberal university counterparts were still under the control of local councils. Therefore, their development was often impeded due to persistent bureaucratic and local political interference in their governance and administrative structures (Dearlove, 2002). As a result, a new HE report, the Jarratt Report, which focussed mainly on improving efficiency in universities, was published in 1985. Its recommendations were wide ranging, but the central thrust was that universities should be incorporated and run as normal profit-making business or commercial enterprises (Knight, 2002; Salter and Tapper, 2002; Middlehurst, 2004, 2013)[4]. With specific reference to internal governance arrangements, the Jarratt report argued that the traditional two-tier governance structure of the liberal universities with excessive academic authority tended to be slow and bureaucratic in decision making, inhibited innovation and enterprise and thus, was inefficient. The Jarratt report, therefore, suggested that "new" or "modern" universities should be formed as public "corporations" with a business-like looking unitary or one-tier governing board, consisting of a majority of "independent/co-opted" or "lay" members (non-academics or outsiders)[5], who are severally and jointly responsible and accountable for the governance of their institutions (Sizer and Howells, 2000; Knight, 2002; Salter and Tapper, 2002; Hordern, 2013; Parry, 2013). Of particular interest, the Jarratt report recommended that the governing board membership should not be less than 12, but not more than 25, including the VC, whose position and authority was elevated to that of a chief executive officer (CEO). Similarly, it suggested further that a majority of the independent members should have industrial or commercial experience with the work of the governing board supported by corporate-like looking sub-committees, such as audit, nomination and remuneration committees. In effect, the Jarratt report sought to weaken the influence of academics in university governance, whilst strengthening that of lay members, especially those with experience of running successful commercial enterprises.

The recommendations of the Jarratt report, especially regarding incorporation and governance was passed into law in the form of the influential ERA (1988). The ERA (1988), therefore, effectively freed the polytechnics from local authority control by transferring their ownership from local educational authorities to HE corporations. The members of the higher educational authorities constituted the board of governors, leading to a two-tier HEI system: polytechnics ("corporations") and universities ("royal charters") with differing governance arrangements. The ERA also created separate funding arrangements, with the polytechnics and colleges funded by the Polytechnics and Colleges Funding Council (PCFC) and the universities funded by the Universities Funding Council (CFC). The two-tier HE sector was further abolished by the FHEA (1992) primarily by: merging the PCFC and CFC to form a single funding council for all HEIs, namely the Higher Education Funding Council in England (HEFCE) with its respective Northern Irish (DENI), Scottish (SHEFC) and Welsh (HEFCW) counterparts; and granting the polytechnics and some colleges a full "university status".

Although and arguably, these reforms had helped in making HEIs more responsive to the country's economic needs by improving access, quality and efficiency (Bennett, 2002), it had equally led to rapid increases in the number of students in UK HEIs. For example, the number of 18-year-olds entering HEIs increased sharply from about 8 per cent in the 1960s to about 43 per cent in the 2000s, which is a bit close to the UK's Government target of achieving 50 per cent participation rate (Dearlove, 2002; Kim, 2008). However, mass HE is expensive and hence, funding costs equally increased rapidly. For example, the proportion of public funding relative to total university income increased rapidly from about 33 per cent in the 1930s to over 90 per cent in the 1970s (Dearlove, 2002, p. 259; Kim, 2008), although it reduced back to about 60 per cent in the 2000s (Shattock, 2013). Thus, expanding access to HE with increasing public funding has often stretched the UK government public budgets, especially in periods of economic difficulty. Consequently, achieving value-for-money through financial management and good governance in HEIs has been a high priority of almost every UK government with a number of reports being commissioned in the 1990s/2000s that have been aimed at reforming HE governance and funding. These reports include the Nolan's (1995/1996) report, Dearing's (1997) report, Lambert's (2003) report and Browne's (2010) report.

Briefly, whilst the first Nolan report in 1995 ("committee on standards in public life") generally highlighted seven main principles (selfless, integrity, objectivity, accountability, honesty, openness and leadership) that should guide the conduct of public officers, including those governing HEIs, the second Nolan report in 1996 focussed specifically on governance structures in the "new" ("post-1992") and "old" ("pre-1992") universities, with its recommendations generally supporting the separate governance arrangements between the pre- and post-1992 universities (Dearlove, 2002). Similarly, the Dearing's (1997) report ("national committee of inquiry into HE") focussed on reforming governance and funding in the HE sector. With respect to governance, and unlike the 1996 Nolan's report, Dearing was more critical. In particular, it argued that the size of the governing boards of the pre-1992 universities, of about 34 on average, were too large and thus, recommended that it should be reduced to 25 to be in line with those of the post-1992 universities (Dearlove, 2002; Shattock, 2004). In addition, it proposed a code of governance for HEIs (although it did not formally include it in its final recommendations), which was heavily influenced by the recommendations that were contained in the Cadbury's (1992) report (Dearlove, 2002; Shattock, 2004, 2013). With respect to funding, the Dearing report recommended a fundamental change in tuition fees from being funded only by free government grants to a mixed system of government grants and student fees, supported by low-interest government loans. This effectively ended the free HE system in the UK, and thereby leading to dramatic declines in public funding of about 37 per cent per student (Kim, 2008; Trakman, 2008).

Meanwhile the Committee of University Chairs (CUC), under the threat of government action, following a series of instances of poor governance in a number of post-1992 HEIs, issued its first voluntary code ("guide") of governance for HEIs in 1995 with subsequent revisions in 1998, 2000, 2004 and 2009 (Shattock, 2004, 2013). Although the code was mainly targeted at the post-1992 universities, the CUC encouraged the pre-1992 universities to also follow the code, particularly with respect to the size of their governing boards. These developments also led to the publication of the Lambert (2003) review, which focussed primarily on examining business-university collaborations, but its remit also included governance. Unlike the Dearing's (1997) report, the Lambert's (2003) report formally included a code of governance for all HEIs to follow with financial penalties for non-compliance, including the pre-1992 universities. The CUC incorporated Lambert's report recommendations into its current (2009) "guide for members of higher education governing bodies in the UK,[6]" thus, effectively bringing the internal governance structures of the pre-1992 universities in line with those of the post-1992s. Furthermore, and following the 2007/2008 banking crisis that led to drastic cuts in the UK Government budgets, the Browne report, which focussed on reforming HE funding, including student finance was published in 2010 (Melville-Ross, 2010; Taylor, 2013b). The Browne's report main recommendation has been the introduction of full-tuition fees with a maximum cap of £9,000 and removal of controls/caps in terms of the number of students that UK HEIs can admit. It has also reformed the system of funding and loan repayment by replacing the funding council (HEFCE) with a new student loan company. In effect, the Browne's report has introduced a "market" or "quasi-market (i.e. government still provides funds/loans to students via the student loan company, but students have the freedom to choose any university of their choice)" economy in the HE sector with the aim of improving quality, but reducing costs by increasing direct competition among UK HEIs. In parallel, funding councils (such as the HEFCE) and other HE umbrella bodies have been highlighting the risks to financial sustainability (Financial Strategy Sustainability Group (FSSG), 2011), the need to improve efficiency, effectiveness and value-for-money (Universities UK (UUK), 2011) and to develop/monitor/report organisational key performance indicators (Committee of University of Chairmen/Chairs (CUC), 2006). In each case, governing boards are expected to pay greater attention to the assessment of these elements and to their reporting and communication to stakeholders. Relatedly, concerns about the wider accountability of the governing bodies were expressed in a review of Scottish HEI governance (Von Prondzynski, 2012; Havergal, 2015a, b) leading to a recommendation, amongst others, of including a key governing board objective aimed at "ensuring stakeholder participation and accounting to the wider society for institutional performance" (Von Prondzynski, 2012, p. 8).

These governance and funding reforms have gradually led to greater demand for public accountability, transparency and performance, mainly through increased external regulatory scrutiny and funding conditions, such as teaching quality inspections by the Quality Assurance Agency for Higher Education (QAA), the research assessment exercises (e.g. the 2014 research excellence framework), and a range of performance/access data via the Higher Education Statistics Agency (HESA). Furthermore, the annual accountability return (which does include financial statements, risk management, sustainability, audit committee and governance reports) is an extensive reporting exercise aimed at satisfying the contractual conditions set between the relevant UK HE funding body (England, Scotland, Wales and Northern Ireland) and each HEI, but the reporting exercise is effectively a private communication between the parties. Finally, results from the National Student Survey (NSS), the Postgraduate Taught Experience Survey and the Postgraduate Research

Experience Survey have been in operation since 2005, and 2009, respectively, and some of the data have been summarised in a key information set that is specifically aimed at helping students compare and contrast data and information on universities and their programmes. The results of these research and teaching assessments, and student surveys feed directly into national and international rankings of HEIs with serious implications for national and international institutional quality, reputation and competitiveness. It is in this rather competitive, complex and changing environment that we seek to study the extent to which HEIs' annual reports provide information on its activities relating to teaching, research, administration, governance and relationships with its other stakeholders. The multiplicity of the audiences and their underlying rationales for relying on such disclosures leads us to consider the study from a multi-theoretical perspective.

A multi-theoretical framework for voluntary disclosures in HEIs

First, it has to be acknowledged that the study of voluntary disclosure is an extensive area of the corporate accounting literature (e.g. Healy and Palepu, 2001; Samaha *et al.*, 2015) and typically, voluntary disclosure refers to information "released to the outside, deriving from the management's insider knowledge of the company, which are not required to be published in regulated reports" (Allegrini and Greco, 2013, p. 187) and is as such a reporting initiative taken by management, whether at the executive or board level. An extensive part of this literature is concerned about the overall level of disclosure and the reasons underlying the differences in disclosure across firms and countries, and whilst some firm level factors (e.g. company size) are consistently found to be associated to disclosure, the results are more mixed when it comes to corporate governance factors (e.g. Samaha *et al.*, 2015)[7] leading to unclear implications and policies for firms and countries engaged in corporate governance reforms. Second and from a theoretical angle, the agency perspective is frequently put forward to explain why managers in a corporate for-profit context may be inclined to engage in a discretionary behaviour of disclosure (e.g. Eng and Mak, 2003; Barako *et al.*, 2006a, b; Trabelsi *et al.*, 2008; Elsayed and Hoque, 2010; Broberg *et al.*, 2010). Such approaches are consistent with a functional-led view of voluntary disclosures (whether social or financial in nature), whereby the information is conveyed primarily to assist users in making specific assessments and decisions (e.g. investing or divesting, monitoring managerial performance and actions, ensuring contractual commitment are met and in assessing risk). In particular, agency theory posits that voluntary disclosures are a means to reduce information asymmetry between contractually related partners. Relatedly, the influence and interaction of corporate governance (internal and/or external mechanisms) have also been considered in terms of whether they promote or impede the extent of voluntary disclosures (e.g. Lim *et al.*, 2007; Rogers and Van Buskirk, 2009; Chau and Gray, 2010; Samaha *et al.*, 2012, 2015), with mixed results and often inconsistent implications for any single main theoretical perspective, such as the dominant agency theory. Therefore, there has been a recent and gradual incorporation of a wider set of social-, political- and institutional-led motivations in the voluntary disclosure literature, which have either sought to complement or supersede the mainstream perspectives (Gray *et al.*, 1995; Branco and Rodrigues, 2008; Chen and Roberts, 2010; Stubbs and Higgins, 2014). In particular, public accountability, legitimacy, resource dependence and stakeholder theories have emerged (e.g. Coy *et al.*, 1997, 2011; Nelson *et al.*, 2003; Mahadeo *et al.*, 2011; Chen and Roberts, 2010; Kang and Gray, 2011). A common thread from such perspectives is that voluntary disclosures are seen to serve a broader and more complex purpose in the organisation's interactions with its environment as opposed to a narrow, wealth maximising and rational actor logic underpinning the mainstream theoretical predictions. This resonates further when considering the case of non-profit organisations, a context where accountability for "performance" is inherently multi-faceted (i.e. towards beneficiaries, government, public, members, staff and funders) and not primarily driven, or measured, by financial distributions to providers of capital. The four perspectives are now briefly set out alongside a summary of existing studies on HEI voluntary disclosure.

According to Coy *et al.* (2011, p. 14), public accountability refers "to a public right to know about the condition and performance of the organization under the accountor's charge". The authors, drawing from the work of Normanton (1971), refer to an important distinction between "accountability" and "public accountability" in that an accountability process (duty to account, and explain for, one's actions) does not imply that the process will be visible to outside parties and tends to involve pre-determined actors/parties, and thereby potentially excluding larger constituencies. Contrastingly, public accountability would by default be exercised in an open forum and organisations/managers would be expected to provide all information in the open and be available to public scrutiny. This is why the authors attach significant value to the role of the annual report in that it provides "a wide range of summarized, relevant information in a single document, which enables all stakeholders to obtain a comprehensive understanding of a university's objectives and performance in financial and non-financial terms. No other single source of such information is available to all stakeholders on a routine basis" (p. 14). Coy *et al.*'s (2011) also discuss of the importance of public accountability in the form of good stewardship of public institutions as a motivation for disclosure by HEIs. In this regard, public accountability through good stewardship arises from a public service ethos, whereby attempts to abuse delegated power are inherently curtailed and instead power is directed at achieving national objectives and protecting the public interests (Coy *et al.*, 2011). In this case, public accountability in the form of good stewardship of public institutions is rights-based and not utilitarian in nature (Nelson *et al.*, 2003). Hence, Coy *et al.* (2011) argue that fairness, accessibility and distribution are important concepts that should guide the development of a public accountability and disclosure model in HEIs. This would be consistent with the normative variant of stakeholder theory (Donaldson and Preston, 1995), which sets out that organisations, such as HEIs have to recognise the multiple expectations of its different stakeholders and that it is the HEIs' duty to provide a full and transparent account of their activities to a wider audience.

Since public sector HEIs have a vital mandate in society in terms of nurturing the knowledge and intellectual base, with a view to fostering social, economic, cultural, political, institutional and individual development, there is, therefore, a clear public interest in ensuring that HEIs operate in accordance with these normative goals, particularly in light of the contemporary threats associated with an overemphasis on managerialism, corporatisation and financial imperatives (Middlehurst, 2013; Parker, 2011), and the concept of public accountability is a key motivation underlying the need for voluntary disclosure that is of sufficient quality and quantity to enable the diverse "public" audiences to hold HEI management to account in an open forum.

However, the empirical evidence over the last two decades from England, Wales and Northern Ireland (EWNI), New Zealand, Australia, Canada and USA (Gray and Haslam, 1990; Coy *et al.*, 1997; Banks *et al.*, 1997; Gordon *et al.*, 2002; Nelson *et al.*, 2003) has indicated very varied levels, and changes in disclosure with wide variations in the types of disclosures. In particular, Banks *et al.* (1997) found that the sample of EWNI universities had a significantly lower level of disclosure (about 42 per cent) compared to their NZ counterparts (about 95 per cent) with very little change over time (1992-1994), whilst the sample of Canadian universities was the lowest performer with an average score of 25 per cent. It has to be noted that the sample of NZ and Canadian universities were rather small (7 and 16, respectively) relative to the EWNI ones (53 in 1992; 73 in 1994). Using a similar disclosure index, Nelson *et al.* (2003) found a significant increase in the voluntary disclosure practices of 33 Canadian institutions from 1996 to 2000, albeit that the overall score in 2000 was approximately 36 per cent. Gordon *et al.* (2002) surveyed 100 US colleges and universities and found an average disclosure level of about 31 per cent. Finally, Coy and Dixon (2004) relied on the PAI to report a significant increase in the level of voluntary disclosure for a sample of 8 NZ universities over a 15-year period from an average of 10 per cent in 1985 to 66 per cent in 2000. With the exception of NZ, and with due consideration of the different disclosure indices used in these studies, the evidence points to a relatively low level of disclosure in spite of several instances of regulatory and governance reforms aimed at enhancing accountability and arguably one may question the extent to which a public accountability perspective can convincingly underpin the observed disclosure behaviour. However, research gaps remain in that to the best of our knowledge, there has not been any study of UK HEIs following Gray and Haslam (1990) and Banks *et al.* (1997), particularly in light of the significant regulatory, governance and competitive factors faced by the sector.

Interestingly, most of the studies do not explicitly consider the relevance of other theoretical perspectives in light of the empirical evidence. For instance, variability in the disclosure themes may point to the possibility of an instrumental form of stakeholder theory (Ullmann, 1985; Roberts, 1992; Mitchell *et al.*, 1997), whereby HEIs may strategically orient their voluntary disclosures to target and manage their most important stakeholder(s). For example, Nelson *et al.* (2003) analyses the disclosure trends in the case of Canadian universities and on the basis of interviews with HEI leaders, concludes that the enhanced level of disclosure was required to support fundraising and inform non-governmental funding sources. The stakeholder management concept also implies that some stakeholders may not be targeted in terms of annual report disclosures because they are seen to be less important or that other media of communication may be used. For instance, Banks *et al.*'s (1997) finding that EWNI universities do not provide a significant number of teaching- and student-related disclosures may be related to the possibility that HEIs were at the time funded by block grants from the government (and not directly by students and, as such students were not seen as key stakeholders) or that the accountability was otherwise made possible to the students via other means (e.g. via student union representatives). In particular, the insights from Mitchell *et al.*'s (1997) notion of stakeholder salience may prove to be more useful in that the authors assert that the organisation will prioritise (and thus for instance communicate more, and/or placate, using disclosures) stakeholders who are deemed to be powerful, legitimate and/or as a result of an urgent circumstance. In this regard, substantial public sector and HEI funding reforms which, for example, in the UK context, has enabled a higher level of competition (i.e. "market" or "quasi-market") between universities (for student places) may lead to a shift in the power, legitimacy and urgency of students and parents as key stakeholders relative to say, public funding agencies and research bodies. In a similar vein, concerns expressed by employers about employability and appropriate skills/knowledge of graduates may also lead to a shift in the salience of employers as more powerful, legitimate and "urgent" stakeholders. In turn, voluntary disclosures may become one of the medium by which stakeholder management is achieved, although one of the main issues in the literature has been the difficulty to elaborate upon how disclosures do actually address stakeholder concerns.

Whilst the stakeholder perspective places a great deal of emphasis on the identification and management of key interest groups, legitimacy theory provides a societal-led motivation for voluntary disclosure and are informed by the institutional perspective of organisational behaviour. Organisations, such as HEIs, can only survive or sustain themselves if their activities and objectives are supported by society and as such they are perceived to be legitimate (i.e. "the organisation's value systems are congruent with the values of the larger social system of which the entity is a part of" (Lindblom, 1994, p. 2). Similarly, according to Suchman (1995, p. 574), "legitimacy is a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". If the legitimacy of the organisation is threatened as a result of a particular event, it is argued that the organisation will adopt different strategies to restore its legitimacy and the communication of the activities and actions implemented thereof (e.g. using voluntary disclosures) is viewed as a central plank of the theory (Suchman, 1995; De Villiers and Van Staden, 2006; Soobaroyen and Ntim, 2013). In addition, voluntary disclosures can in themselves become desirable, in that they are proper and appropriate actions deemed to be "expected" of a "professional and well-structured" organisation. Within such a perspective, voluntary disclosures might well be ritualistic and symbolic in nature and, for example, may be the result of a response to a general change in public attitudes and of norms and beliefs towards HEIs. For example, after the introduction of "quasi-market" conditions in the HEI sector primarily in the form of full-tuition fees and competition for students in the UK and a raft of other reforms aimed at improving the efficiency and effectiveness of HEIs activities (FSSG, 2011; UUK, 2011), an external discourse focussed on issues of accountability and transparency can in itself lead to more disclosure primarily as an organisation perceives that such additional disclosure equates to "more accountability" and is, therefore, in line with the socially constructed system of norms, values and beliefs. Furthermore, Suchman (1995) refers to the process of "strategic legitimacy", where organisational decision makers effectively "scan" their environment and respond to legitimacy threats. According to Suchman (1995), different dynamics or "conduits" exist by which organisational actors can manage their legitimacy (pragmatic, moral and cognitive). Pragmatic legitimacy (Soobaroyen and Ntim, 2013) can be seen as one that is achieved as a result of fulfilling direct exchanges (financial or otherwise) with immediate target audiences (e.g. funders, students and employers).

In contrast, moral legitimacy is not specifically aimed at a particular audience, but rather it is the result of the organisation visibly demonstrating an affiliation to moral values and beliefs. Suchman (1995) further breaks down moral legitimacy into consequential (meeting acceptable outputs), procedural (adoption of best practices) and structural forms (organisation has characteristics that are intrinsically worth of support). In this regard, non-profit and similar organisations, such as HEIs, exist in order to meet normative goals (e.g. education and research) and whilst they are subject to many attempts to be evaluated according to instrumental- and consequential-led measures (e.g. number of graduates, student employability ratios, NSS, research or teaching excellence framework and value of research funding). An HEI's legitimacy is also assessed more broadly in terms of the practices it adopts (e.g. external examining, subject benchmarks and research ethics) and also the fact that the HEIs have historically attracted support. Therefore, one expects that voluntary disclosures can be relied upon to communicate or reinforce the HEI's multiplicity of outputs (consequences), best practices (procedural) and historicity (structural). Relatedly, Parker (2013), and to some extent Nagy and Robb (2008), provide an account of how HEIs globally, including those in the UK, have gradually internalised private-sector- and competitive-led practices in teaching and research activities, emphasising revenue generation, financial logics of efficiency, value-for-money and quantitative-led management controls, such as key performance indicators. In so doing, they are responding to external expectations of "performance", but at the same time, Parker (2013) suggests that universities, like companies, will also enhance their level of voluntary disclosure on a selective basis (e.g. refer to Coy and Pratt, 1998) to ensure that a good impression of their activities is communicated to the wider audience, albeit that information on such a basis may not be a comprehensive reflection of public accountability. Nonetheless, it is quite puzzling to note that the legitimacy motivation features rarely in the HEI voluntary disclosure literature. In their study of 44 Canadian HEIs, Maingot and

Zeghal (2008) empirically test for the association between university mission/objective, and size on the level of voluntary disclosure of performance indicators. It was found that that each of these variables was positively associated to the level of voluntary disclosure and the authors conclude that the findings are consistent with legitimacy theory. However, we would argue that their findings are limited given the univariate nature of the analysis, the exclusive focus on performance indicators, and other important variables, such as governance, have not been explicitly considered.

The final theoretical perspective of interest is resource dependence, which is primarily concerned with the critical influence of external organisations on organisational behaviour and the power relations underlying the relationship between the different organisations. According to Pfeffer (1987), the basic premise of the theory is that the fundamental units for understanding inter-corporate relations and society are organisations. These organisations are not autonomous, but are rather constrained by a network of interdependencies with other organisations as they seek to access the relevant resources (e.g. financial, human resources, information and legitimacy) to continue operating. In a context marred by uncertainty about the actions that may be taken by the government and regulatory authorities, organisations tend to take proactive actions (e.g. disclose more information, change strategies and appoint more external board members) to manage the interdependencies, but such actions are not always fully successful, leading to new patterns of dependencies and interdependencies. Over time, these changing patterns generate positions of power both within and outside the target organisation. In the context of the non-profit literature (e.g. Callen *et al.*, 2010; Verbruggen *et al.*, 2011; Verschuere and De Corte, 2014), it is argued that resource dependence has provided a framework to model the behaviour of non-profit organisations in relation to its powerful resource providers and in particular, various studies suggest that such organisations are prone to volatility in their access to resources and often depend on multiple sources to ensure they can continue to meet their objectives. As a result, organisations may be compelled to implement practices that are primarily for the benefit of the resources provided (e.g. Verbruggen *et al.*, 2011). In response to such circumstances, organisations do attempt to reduce uncertainties and resource shortages by maintaining autonomy, resisting pressures from, and/or managing their interdependencies with, external groups. Currently, UK public HEIs remain highly reliant on key resources for their survival (e.g. teaching income, international students, research income, enterprise activities, human capital, space and reputation/rankings) and the resource dependence theoretical perspective either suggests that the external organisations, which control these resources can have power over the HEI and thereby pressure it to operate according to its expectations or that the HEI is able to resist this power and maintain an autonomy (Verschuere and De Corte, 2014).

The relevance of resource dependence theory in accounting and voluntary disclosure is gradually emerging in the accounting literature, but its implications have mostly been considered in relation to the role of board and governance structures in influencing the level of disclosure in private profit-making organisations (Ntim and Soobaroyen, 2013a, b). In particular, one of the key strategies outlined in resource dependence theory to address power imbalances and uncertainties from the external environment is to tailor the organisation's board composition to ensure a more stable control of the flow of resources for the organisation (Hillman *et al.*, 2009). According to Pfeffer and Salancik (1978; cited in Hillman *et al.*, 2009), directors can bring four benefits to organisations: information in the form of advice and counsel; access to channels of information between the firm and environmental contingencies; preferential access to resources; and legitimacy. Based on an extensive review of the literature, Hillman *et al.* (2009) conclude that these benefits brought to the board do flow to the organisations and, therefore, there is strong support for the continued practice of co-opting "resource-rich" (Hillman *et al.*, 2009) directors – a practice we can anecdotally attest to in the case of the recent composition of UK HEI governing boards. In terms of the voluntary disclosure effects within an resource dependence theoretical perspective, the current conclusions and evidence seems to suggest that resource providers would respond positively to voluntary disclosure and improve organisational access to resources, in a similar vein to the stakeholder theoretical predictions (Chen and Roberts, 2010; Ntim and Soobaroyen, 2013a, b). However, one might argue that voluntary disclosure can also disrupt the delicate balance of the interdependencies between two organisations by revealing information that is crucial to one organisation and, therefore, lead to a power imbalance. Finally, the various insights by Parker (2002, 2011, 2012, 2013), Nagy and Robb (2008) and Taylor (2013a, b) also suggest that there has been a significant change in the way HEIs appear to have attempted to manage their dependencies and interdependencies in the wake of decreased public funding and regulatory reforms, and primarily have led to the adoption of practices and strategies to ensure an alignment to external expectations rather than reflect resistance or autonomy.

In conclusion, public accountability, legitimacy, resource dependence and stakeholder theories provide an overlapping theoretical framework to consider the extent and determinants of voluntary disclosures in UK HEIs. Given the broader social and political factors underpinning the activities of the UK HEI sector, we contend that the above-mentioned theories may offer a richer and more complex set of potential explanations for the cross-sectional differences in voluntary disclosure behaviour.

Governance and voluntary disclosure in HEIs: prior empirical studies and hypotheses development

Informed by insights from previous empirical studies on voluntary disclosure in HEIs (e.g. Gray and Haslam, 1990; Coy *et al.*, 1991, 1994, 1997, 2011; Cutt *et al.*, 1993; Dixon *et al.*, 1991; Banks *et al.*, 1997; Coy and Pratt, 1998; Gordon *et al.*, 2002; Nelson *et al.*, 2003; Coy and Dixon, 2004), general voluntary disclosure within the corporate sector (e.g. Eng and Mak, 2003; Collett and Hrasky, 2005; Barako *et al.*, 2006a, b; Cheng and Courtenay, 2006; Chau and Gray, 2010; Adelopo, 2011; Jetty and Beattie, 2012), internal governance (Carter *et al.*, 2003; Gompers *et al.*, 2003; Van der Walt and Ingley, 2003; Beiner *et al.*, 2006; Cheng *et al.*, 2008; Coles *et al.*, 2008; Guest, 2009; Bozec and Bozec, 2012) and the UK HEI setting literature (e.g. Jarrat, 1985; Nolan, 1995/1996; Dearing's 1997; Lambert's (2003); Committee of University of Chairmen (CUC), 1995/1998/2000/2004/2009; Schofield, 2009; Browne, 2010), we identified the potential antecedents of voluntary disclosures. Specifically, we examine how a number of internal governance mechanisms, including governing board size (GBSIZE), IGOV, frequency of governing board meetings (GBMs), governing board diversity (GBDIV), audit committee quality, the presence of a governance committee (GCOM) and audit firm quality/size impact on an HEI's level of voluntary disclosure.

GBSIZE and voluntary disclosure

From a public accountability theoretical perspective, smaller governing boards are able to co-ordinate and communicate better (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996) and therefore may be more capable at protecting the public interest (public accountability) than larger boards (Coy *et al.*, 1997, 2011; Nelson *et al.*, 2003; Coy and Dixon, 2004). By contrast, from a stakeholder theoretical point of view, larger governing boards may be advantageous in espousing corporate democracy in terms of being able to represent a wider group of key parties and actors interested in the activities of the company (stakeholder) (Freeman and Reed, 1983; Freeman, 1984). Similarly, resource dependence theory suggests that larger boards are associated with increased pool of skills, experience and expertise, as well as greater connection with the external environment, including providing access to critical resources, such as capital, contacts and contracts (Pfeffer and Salancik, 1978; Reverte, 2009). Arguably, the need to secure critical resources in supporting an HEI's ability to maintain financial sustainability will be discernibly greater in the context of increased competition, public sector cuts and reforms. In addition, the structuring/composition of a board may also have a legitimating value (legitimacy) in terms of how the organisation structures its strategic leadership in accordance with societal expectations (Ashforth and Gibbs, 1990; Suchman, 1995). These multiple-theoretical perspectives pre-suppose that a board's ability to be effective in achieving these different roles depends on having a sufficient number of board members and in turn, one might expect that the extent of disclosure will be higher in response to the multiple demands, and roles expected, of board members.

Within the mainstream empirical corporate governance and accounting literature, board size has been found to have a significant effect on voluntary disclosure (e.g. Eng and Mak, 2003; Barako *et al.*, 2006a, b; Donnelly and Mulcahy, 2008; Allegrini and Greco, 2013), CG disclosure (Beekes and Brown, 2006; Samaha *et al.*, 2012; Ntim *et al.*, 2012), SEA disclosure (Branco and Rodrigues, 2008; Michelon and Parbonetti, 2012; Ntim and Soobaroyen, 2013a, b), and performance (Yermack, 1996; Cheng *et al.*, 2008; Coles *et al.*, 2008; Guest, 2009). However, the effect of board size on voluntary disclosure is not always positive. For example, Donnelly and Mulcahy (2008), Bassett *et al.* (2007) and Lindgreen *et al.* (2010) find no association between board size and voluntary disclosure, whilst Allegrini and Greco (2013) and Ntim and Soobaroyen (2013a, b) do find evidence of a significant positive link between board size and SEA disclosure. One of the key issues underlying the absence of consistent results may be related to concerns expressed by both corporate (e.g. Higgs, 2003; Donnelly and Mulcahy, 2008) and HEI sectors (Collis, 2004 in the USA; Lambert, 2003; Buckland, 2004 in the UK) that board size has to be limited to an optimal or benchmark figure to prevent the emergence of an unwieldy and bureaucratic structure. The latter would be unable to operate effectively *vis-à-vis* the executive and reinforce the perception of a board being no more than a "talking shop" with little ability to help co-ordinate and lead the organisation. In the case of the UK HEI sector, the Committee of University of Chairmen/Chairs (CUC) (2009) recommended a board size of between 12 and 25 members, suggesting that the Code considers size of the board to be relevant in terms of its effectiveness and ability to hold university executives to account. Noticeably, however, this benchmark is significantly higher than the corporate (e.g. Lipton and Lorsch (1992), Jensen (1993) and Yermack (1996) suggest a board size greater than ten does not generate incremental benefits) and the US HEI sector (e.g. Collis (2004) suggested a "workable" board of about 12 members). The extant UK survey evidence (CUC, 2006; Schofield, 2009) suggests that whilst board size is on the decline primarily due to regulatory requirements, the average GBSIZE has remained high. Observably, there is acute lack of evidence on the impact of board size on voluntary disclosure in the HEI sector and thus, this provides good opportunities to contribute to the extant literature. The only exception is a US-based study by Gordon *et al.* (2002), which reports no significant association between GBSIZE and voluntary disclosure in a 1994 cross-sectional sample of 100 US HEIs, and thereby concluding that irrespective of size, "one or two powerful leaders [within the board] could radically change disclosure expectations" (p. 267). Due to the mixed theoretical and empirical evidence, as well as the generic suggestion that "[…] there is no preponderance of theory or empirical evidence to suggest a relation between board size and levels of voluntary disclosure" (Cheng and Courtenay, 2006, p. 266), we hypothesise that GBSIZE will be related to voluntary disclosure, but we do not specify the direction of the coefficient as follows:

H1. There is a significant association between GBSIZE and extent of voluntary disclosure.

IGOV and voluntary disclosure

From a public accountability perspective (Coy *et al.*, 2011; Nelson *et al.*, 2003), the presence of independent or lay governors can enhance managerial monitoring and thereby help in improving public accountability and transparency. As a result, IGOV are in a position to influence a HEI's voluntary disclosure regime since the governing board technically approves the annual reports and related voluntary disclosures. In contrast, it can be argued that disclosure and governance are inter-related control mechanisms and that the presence of IGOV may be sufficient to satisfy stakeholders (including funding councils) without the need for more disclosure. With the passage of time, disclosure items become accepted and entrenched within organisations and as a result, the role of the lay governor in influencing disclosure can diminish or become minimal. Thus, in the case of HEIs, voluntary disclosure has been primarily seen from a (normative) view of public accountability, where it is a duty of the organisation to provide information (Coy *et al.*, 2011) so that its actions can be assessed and that abuse of power/authority can be curbed. Coy *et al.* (2011) mainly suggest a stakeholder approach to disclosure, where the HEI would provide a range of information of relevance to different interest groups. However, the authors implicitly rely on the management's responsibility to be accountable and the use of appropriate standards and guidelines issued by regulators, and do not consider the potential circuit(s) by which this duty of accountability can actually be exercised.

Similarly, legitimacy and stakeholder theories indicate that if a legitimacy gap exists between organisations and their stakeholders (Ashforth and Gibbs, 1990; Suchman, 1995), then one strategy might to appoint IGOV to symbolise openness and transparency. Thus, in an increasingly competitive, but information asymmetric "market" or "quasi-market" UK HE sector, better-governed HEIs may seek to distinguish themselves from their poorly governed counterparts. One way by which an HEI can signal its good governance credential to its stakeholders is to appoint "respectable" IGOV. Thus, lay governors represent different stakeholder interests and may seek to influence the organisation's response, in terms of disclosure, to the demands and interests of these parties. In the same vein, resource dependence theory suggests that governing boards dominated by IGOV may increase access to critical resources, such as contacts, contracts, competences (e.g. legal and risk management expertise) and finance (Reverte, 2009; Schofield, 2009; Chen and Roberts, 2010). In other words, the resource dependence perspective implies that lay governors become important mechanisms by which information, networks and resources can be tapped and that voluntary disclosure may help reduce the uncertainties and power imbalances between HEIs and their external environment. Arguably, and given the increasing "marketisation", competition, public funding constraints and reforms within the UK HE sector, the application of resource dependence theory is arguably particularly useful. For example, Buckland (2004) suggests that a political decision (reform) has been made to allow for the increase in influence and presence of business and industry in the governance structures of UK HEIs, thereby reinforcing a resource dependence motive for the appointment of IGOV by UK HEIs.

Within the UK HE setting, Shattock (2013) suggests that the Lambert's (2003) report recommendations on the need to strengthen HEI governing boards were heavily influenced by the corporate governance failures highlighted in the corporate sector and the resulting and gradual development of the UK Combined Code on CG between the late 1990s and early 2000s (e.g. Cadbury's (1992) report, Greenbury-Report (1995) report, Hampel Report (1998) report, Turnbull Report (1999), Combined Code FRC (2000/2003) and Smith Report (2003). Other than seeking to improve the level of monitoring and accountability of executives towards the board and the external stakeholders, the pronouncements in the HEI sector also placed greater emphasis on the governing board to be more involved in setting institutional direction, policy and strategy, including in relation to voluntary disclosure and transparency. The common and most critical element in ensuring a board can effectively monitor and lead at the strategic level resides in the appointment of independent or lay members of the governing body.

With regards to the empirical literature on voluntary disclosure in the corporate sector, the specific role of the independent non-executive directors continues to be studied in different national contexts with positive evidence of the role of such directors in improving voluntary disclosure (e.g. Xiao *et al.*, 2004; Cheng and Courtenay, 2006; Lim *et al.*, 2007; Chau and Gray, 2010; Gisbert and Navallas, 2013), corporate governance-disclosure (Collett and Hrasky, 2005; Beekes and Brown, 2006; Samaha *et al.*, 2012, 2015), SEA disclosure (Michelon and Parbonetti, 2012; Fifka, 2013; Ntim and Soobaroyen, 2013a, b) and performance (Gompers *et al.*, 2003; Beiner *et al.*, 2006; Bozec and Bozec, 2012). To a lesser extent, evidence also emerges in terms of a lack of association (e.g. Allegrini and Greco, 2013; Lan *et al.*, 2013) or even a negative relationship between the proportion of independent directors and voluntary disclosure (e.g. Eng and Mak, 2003; Barako *et al.*, 2006a, b). With specific focus on the HE sector and to the best of our knowledge, no prior study has empirically tested the association between IGOV and the extent of voluntary disclosure and thus, offers important opportunity to make original contribution to the extant HEIs voluntary disclosure literature. Nevertheless, surveys by Nelson *et al.* (2003), CUC (2009), Maingot and Zeghal (2008) and Schofield (2009) suggest that it is likely that IGOV may play a role in voluntary disclosure decisions in HEIs. Also, the CUC (2009) governance guidance emphasises that the lay (independent) governors should represent at least 50 per cent of the number of governors for both pre- and post-1992 institutions, implying that lay governors are deemed to be important actors in the HEI's governance and decision-making structures and processes. Similarly, the changing and uncertain funding regime (Shattock, 2013), which has emerged after 2010 has arguably led to an awareness of a competitive and risky environment and that multiple sources of funding and support have to be considered, which can be enhanced through the appointment of respectable IGOV. Hence, the CUC (2009) guide views the presence of IGOV as a positive development, which may have a positive effect on voluntary disclosure. Thus, we formulate the following hypothesis:

H2. There is a positive association between lay (independent) governors and the extent of voluntary disclosure.

GBMs and voluntary disclosure

From a public accountability viewpoint (Coy *et al.*, 2011; Nelson *et al.*, 2003), whilst board size and the composition of the governing board focus on the structural characteristics of the board and the profile of its members, the diligence of the board conveys the actual level of activity, monitoring quality and influence the governing board may have on organisational processes and outputs (Lipton and Lorsch, 1992; Jensen, 1993). In this respect, the number of meetings has been often relied on as a proxy for effective board of directors (Vafeas, 1999; Sonnenfeld, 2002; Carcello *et al.*, 2002; Karamanou and Vefeas, 2005). From a resource dependence perspective, regular GBMs may be helpful in allowing governors to strategise, discuss, plan and assess executive performance, which may be particularly useful in a period of increased financial uncertainty, competition and reform. Similarly, frequent board meetings may enhance stakeholder representation (Freeman and Reed, 1983; Freeman, 1984) and the legitimacy (Ashforth and Gibbs, 1990; Suchman, 1995) of the board by keeping governors informed and up-to-date about developments within the institution, which can help them to address emerging critical problems in a timely manner. By contrast, others (Jensen, 1993; Vafeas, 1999) have suggested that regular board meetings may have a negative effect in terms of executive time, travel arrangements and potential conflicts of opinions. Indeed, Jensen (1993) argues that an effective board can occasionally remain inactive. Instead he suggests that the board can be flexible, whereby the frequency of meetings can be increased in response to urgent developments (e.g. impending QAA audits, merger or hostile-takeover bid) and decreased when there are limited emergent issues to address.

Empirically, the mainstream corporate governance literature indicates that the frequency of board meetings impacts positively on voluntary disclosure (Laksmana, 2008; Allegrini and Greco, 2013), audit fees (Carcello *et al.*, 2002) and accuracy of earnings forecast (Karamanou and Vefeas, 2005), but negatively on performance (Vafeas, 1999; Fich and Shivdasani, 2006). With regard to HEIs sector and to the best of our knowledge, there is no previous study examining the link between the frequency of GBMs and the extent of disclosure, and thus a golden opportunity to make original contribution to the extant voluntary disclosure literature. Discernibly, the CUC (2009) governance guide encourages governing boards to meet at least four times a year and thus, regular GBMs appears to be viewed as a positive development by the guide, which can impact positively on voluntary disclosure. Hence, informed by stakeholder, resource dependence and legitimacy theoretical perspectives, we hypothesise that:

H3. There is a significant association between GBMs and the extent of voluntary disclosure.

Governing boards' membership diversity (GBDIV) and voluntary disclosure

A relatively less researched, but emerging, aspect in the mainstream corporate governance literature relates to the organisational effects of the diversity (or lack thereof) of the governing board members in terms of observable (e.g. age, ethnicity, gender and nationality) and non-visible (e.g. experience, religion, education and professional occupation) characteristics that can impact on boardroom dynamics, decision making and effectiveness (Carter *et al.*, 2003; Van der Walt and Ingley, 2003; Mahadeo *et al.*, 2012; Ntim and Soobaroyen, 2013a, b). Public accountability theory (Jensen, 1993) predicts that greater monitoring and independence often associated with diverse boards can render them better at protecting the public interest than their homogenous counterparts (Coy *et al.*, 2011; Nelson *et al.*, 2003). Similarly, resource dependence theory indicates that governing boards of diverse origins may be useful in connecting organisations to their external environment, including powerful stakeholders that may be helpful in attracting critical resources, as well as improving organisational image and legitimacy, particularly in a period of increased uncertainty. In fact, the need to maintain diversity in governing boards is of a particular importance within the UK HEIs sector and is stated in relevant rules. For example, the CUC (2009) guidance in relation to the composition of the governing board for both pre- and post-1992 institutions (pp. 41-45) explicitly provides that "[…] there should be a balance of skills and experience sufficient among members to enable the institution to meet its primary responsibilities and ensure stakeholder confidence" (p. 41) and that the appointed members should be "[…] people appearing to the appointing authority to have experience of, and to have shown capacity in, industrial, commercial or employment matters or the practice of any profession" (p. 45). The guidance therefore implies that a diverse board would be desirable and effective whilst leaving it to the institutions to decide how to achieve such diversity. From a theoretical point of view, therefore, both statements explicitly set out a resource dependence perspective in that it is expected that the HEI draws on resources from having access to individuals from different occupations and sections of society. HEIs are very much dependent on, and in many cases interdependent with, a variety of external organisations and institutions (e.g. government, student funding bodies, research councils, academic and funding regulators, HE access regulators and companies) and a recognition of such interdependence may be reflected in the disclosures, particularly in times of uncertainty and change, and having to satisfy multiple audiences. Furthermore, the reference to "stakeholder confidence" arguably underlies the need to manage the perceptions of multiple stakeholders and this can be achieved in terms of providing relevant disclosures. Due to the importance of gender and ethnic diversity, as well as being easily observable, we focus on gender and ethnicity aspects of the HEIs' governing boards in terms of the number of women and ethnic minorities (black, Asian and ethnic minorities (BAME)) represented.

Empirically, there is limited, but gradually increasing evidence on the effect of board diversity on a number of different organisational outcomes (Fifka, 2013). For example, the findings of past studies indicate that board diversity impacts positively on voluntary disclosure (Barako and Brown, 2008), performance (Carter *et al.*, 2003; Mahadeo *et al.*, 2012; Ntim, 2015) and SEA disclosure (Fifka, 2013; Ntim and Soobaroyen, 2013a, b). To the best of our knowledge, however, no study has examined the link between GBDIV and voluntary disclosure within a HEI setting, and thus offers a good opportunity to contribute to the extant voluntary disclosure literature. Given the CUC (2009) Code's explicit encouragement of diversity in governing boards, we will expect UK HEIs with higher levels of gender and ethnic diversity in their governing boards to put greater pressure (especially by the BAME members of the board) on university executives to commit to increased voluntary disclosure. Consequently, we hypothesise that:

H4. There is a positive association between GBDIV and the extent of voluntary disclosure.

The quality of board audit committee index (QBACI) and voluntary disclosure

The audit committee is a key corporate governance structure and has attracted a significant amount of attention in the mainstream literature (Bédard and Gendron, 2010; Jetty and Beattie, 2012; Ghafran and O'Sullivan, 2013). The main role of the audit committee is to provide a specialist oversight of accounting, auditing, reporting and risk practices/issues (and information generated thereof) within the organisation. In light of the fact that many corporate collapses and scandals were related to, or involved, accounting and auditing issues, the audit committee is viewed as an important public accountability and monitoring mechanism that is able to provide assurances as to the integrity of the information disclosed externally and of the relevant internal controls to the board and shareholders/stakeholders. The audit committee also liaises with, and relies upon, the external and internal auditor to ensure that issues are highlighted and management is made accountable for aspects relating to accounting, audit, disclosure, controls and risk. In this regard, a fairly extensive stream of studies has considered the effects of the existence, composition and diligence of the audit committee on organisational outcomes, such as audit quality, financial reporting quality (including earnings management), internal audit quality and investors' perceptions.

In relation to the case of voluntary disclosure, empirical studies (e.g. Mangena and Pike, 2005; Barako *et al.*, 2006a, b; Kelton and Yang, 2008; Allegrini and Greco, 2013) have found that the existence and/or composition of the audit committee (including the expertise of its members) have a positive impact on the level of voluntary disclosure. In the context of the UK HEI sector, the audit committee has not attracted a similar research attention although the relevant governance and audit committee guidance (Committee of University of Chairmen (CUC), 2008, 2009; Pearson, 2009) provides detailed information and prescriptions on the composition and operation of the audit committee. In particular, the relevant guidance (CUC, 2008 – *Handbook for Members of Audit Committees in HEIs*) expects, amongst other duties, that the audit committee should assess the clarity, completeness and transparency of the financial information and related voluntary disclosures and consider the voluntary disclosure practices of other institutions. One peculiarity of the UK HEI sector is that funding councils explicitly require the audit committee to provide assurances on the appropriateness of financial and control systems, risk management and the integrity of the information provided in the annual accountability returns to the funding councils, including the financial statements. Accordingly, the audit committee has to prepare its own annual report, which is approved by the governing board and submitted to the funding councils for scrutiny.

This underlies the crucial role placed upon audit committees of HEIs in ensuring that organisational accountability and transparency is maintained. Evidence on the audit committee activity remains scant, except for Dewing and Williams (1995) and CUC (2006). In particular, Dewing and Williams (1995) found that very few of the surveyed audit committees (10 per cent) were concerned with external accountability, but given that the introduction of audit committees in the HE sector was at an early stage of development, the authors contended that audit committees may help in improving the level of accountability in the future. Thus, from a public accountability, stakeholder, resource dependence and legitimacy perspectives, we hypothesise that the audit committee quality (in terms of composition, expertise, diligence and monitoring capacity) will influence the level of voluntary disclosures:

H5. There is a positive association between the audit committee quality and the extent of voluntary disclosure.

The presence of a GCOM and voluntary disclosures

Whilst the CUC (2009) Code explicitly requires the establishment of audit, nomination and remuneration committees to monitor accounting, internal control, risk, appointment and remuneration issues, it does not require HEIs to set up a GCOM to closely monitor compliance with its governance recommendations contained in the guide. Consequently, we argue that HEIs that establish a GCOM to directly and continuously monitor their compliance with governance requirements contained in the guide on their own volition (i.e. voluntarily) are more likely to engage in good corporate practices and disclose more than those that do not have GCOMs (Core, 2001; Ntim *et al.*, 2012). The relationship between the presence of a GCOM and voluntary disclosure is generally under-researched, and thus this renders it a fertile area for examination, especially in the case of HEIs. Empirically, and using 169 South African listed firms from 2002 to 2006, Ntim *et al.* (2012) report that corporations that voluntarily establish a GCOM to monitor governance practices tend to disclose more information relating to their governance practices than those who do not have GCOMs. Thus, we hypothesise that:

H6. There is a positive association between the presence of a GCOM and the extent of voluntary disclosure.

Audit firm quality (BIG4) and voluntary disclosure

The quality, status and size of the external audit firm has been observed to be crucial factor in the corporate sector (e.g. Datar *et al.*, 1991; Camfferman and Cooke, 2002; Wang *et al.*, 2008; Adelopo, 2011; Jetty and Beattie, 2012) because it signals the organisation's willingness to be audited using more stringent standards and thereby this communicates a preference for high-quality earnings information estimations and disclosures. From a public accountability perspective, the external auditor is a key monitoring mechanism, which seeks to alleviate agency costs and large audit firms have the power to self-select clients (Adelopo, 2011) and can impose changes in accounting and disclosure to maintain their reputation. With regards to the HEI context, recent evidence from a survey of audit fees in 113 universities (Xue and O'Sullivan, 2013) reveals that 78 per cent of the UK HEIs are audited by BIG4 audit firms (i.e. Deloitte and Touché, Erns and Young, KPMG and PWC), with KPMG acting as the external auditor in 38 per cent of the sample. This finding reflects a propensity for HEIs to appoint large and reputable audit firms and it is also noted that there is a significant correlation between the use of a BIG4 audit firm and the so-called traditional universities (pre-1992s). However, the consequences for public accountability are not explicitly considered in this audit fee study, whilst Gordon *et al.* (2002) do examine whether audit firm size (i.e. audit firm status: BIG6 firms vs state auditors) does influence the level of voluntary disclosure by US colleges and universities. The findings show that almost all the surveyed private institutions (96 per cent) rely on a BIG6 audit firm, whilst only 57 per cent of the public institutions have appointed a large private firm and most of the remaining institutions rely on state auditors. In the case of public institutions, there was support for the hypothesis that universities with state auditors disclosed more than those audited by public accounting firms and in considering the full sample of private and public institutions, a lower level of disclosure was associated with universities audited by the BIG6 audit firms. The authors interpret this result in light of the public accountability ethos orientation that is often inherent in terms of relationships with state-level rather than private-sector auditors. In the UK context, external auditors have an explicit public accountability mandate towards the statutory funding bodies (Xue and O'Sullivan, 2013). Thus, they are otherwise not directly accountable to a "principal" (i.e. a shareholder) as may often be the case within for-profit or private-sector organisations, but rather to the governing board via the AC. However, and from a public accountability theoretical, external auditors, especially the Big4 audit firms have a public interest role to play and thus, it can be argued that UK HEIs audited by the Big4 audit firms may engage in increased voluntary disclosure than those that are not. Equally, from a legitimacy and resource dependence perspective, external auditors provide a "halo" of transparency and accountability to their HEI clients which would, in turn, enhance their legitimacy and access to resources. However, the extent to which such actions would be reflected in terms of high voluntary disclosure remains to be examined. As a result, we contend that:

H7. There is a significant association between audit firm quality and the extent of voluntary disclosure.

Governance structures-voluntary disclosure nexus: The moderating effect of university executive team

As previously explained, governance in UK HEIs is often a "shared" arrangement among a number of bodies, namely the governing body/council (board of governors/court), senate (academic body) and vice-chancellery (VC, deputy VC/chief operating officer and the senior executive/management team – often, but not necessarily always, consisting of pro-VCs, deans of faculties and schools, directors of services and the registrar/secretary) (Shattock, 1998, 1999; Sizer and Howells, 2000; Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Middlehurst, 2004; Shattock, 2002, 2004; Kim, 2008; Trakman, 2008; Melville-Ross, 2010; Hordern, 2013; Taylor, 2013a). First, the governing board has the ultimate responsibility for all the affairs of the university, including governance, academic, risk, financial and non-financial matters. In the past, governing boards of UK HEIs were dominated by academics; recent reforms have increased IGOV' membership, often with "commercial or industrial" experience at the expense of academic membership (Bennett, 2002; Dearlove, 2002; Knight, 2002; Taylor, 2013a) – a practice which was initially adopted in the post-1992 HEIs governance structures and more recently being diffused to the pre-1992 HEIs boards. As previously noted and in practice, financial leadership and governance, including auditing, financial reporting and risk management is mostly carried out through the audit committee of the governing board. Second, the VC is the CEO and is responsible for the management of the university. Similar to modern corporations, the VC manages the institution by appointing a senior or executive management team, including pro-VCs and/or directors for research and enterprise, teaching, finance, human resource, estates and registry. The VC and her/his management team are directly accountable to the governing board. Third, the senate is responsible for administering all academic affairs of the institution, including developing the curricula, promoting research and improving teaching quality.

The senate is accountable to both the governing board and the university executive management team, especially the VC. Thus, in order to run an institution in the public interest, there exist apparent lines of accountabilities, responsibilities and interactions among these three bodies. With particular focus on financial reporting, accounting and auditing, a considerable amount of interaction typically occurs among the governing board (e.g. audit committee), the executive team (e.g. finance committee, finance director and secretary/registrar), internal and external auditors and the senate (e.g. deputy VC, chief operating officers, pro-VCs for teaching and research). Therefore, we suggest that the extent and quality of voluntary disclosure may be influenced by the extent to which the university executive team is able to interact effectively with the governing board and the senate, akin to a collegial form of management predicated by Middlehurst (2013) and a shared governance model outlined by Taylor (2013a). In contrast, concerns by Taylor (2013a) and the critical reflections by Parker (2011, 2013) and Nagy and Robb (2008) imply that the managerialist and corporatist tendencies observed in HEIs (including the UK), such as the use of private-sector corporate governance models, may paradoxically lead to a form of "scientific management and governance" reminiscent of Taylorist principles (Parker, 2011, p. 443). According to Parker (2011), this would be reflected into a centralised decision-making process by the executive and a tendency to privilege narrow forms of accountability that are more restricted to the financial aspects or to the demands of powerful parties such as government and regulators, and thereby marginalising a broader form of voluntary disclosure to society and community. Thus, and arguably the higher (lower) the quality of interaction between the university executive team and governing board, the higher (lower) we will expect the voluntary disclosure to be. As a result, our final hypothesis is that:

H8. The higher (lower) the university executive team interactive quality, the more (less) positive (negative) is the link between the governance mechanisms and extent of voluntary disclosure.

Research design

Data considerations

Our sample is based on the entire population of 164 UK HEIs, as at 31 December 2012[8]. As the results of previous studies indicate that HEI size tend to drive voluntary disclosures (Gray and Haslam, 1990; Banks *et al.*, 1997; Gordon *et al.*, 2002; Nelson *et al.*, 2003; Coy and Dixon, 2004; Maingot and Zeghal, 2008), we limited our sample to HEIs with a minimum total annual income of £5 million. In total, 130 HEIs met this criterion, and thus represented our final sample used in conducting our quantitative analysis. Our sampling also took into account geographic/regional distribution (e.g. England, Scotland, Wales, and Northern Ireland), as well as pre- and post-1992 compositions. In this case, the final sample of 130 is almost equally split, consisting of 66 post-1992 and 64 pre-1992 HEIs. Overall, the sampled HEIs represented approximately 79 per cent of the entire population of UK HEIs and represent a large sample relative to previous empirical work in the UK and elsewhere (e.g. Banks *et al.*, 1997; Gordon *et al.*, 2002). We collected two main types of secondary data relating to the: internal governance and managerial structures, such as board and subcommittee characteristics; and public accountability and transparency index (PATI), which is our main proxy for voluntary disclosure. The internal governance, PATI and financial variables, were collected primarily from the sampled HEIs annual reports, which we downloaded from their various websites. This was, however, supplemented with other publicly available data sources, such as HEIs' websites and other relevant reports.

Definition of variables and model specification

We classify our variables used in testing *H1-H8* into four main types with the Table AI and Table I presenting how we measured each of them. First, our main dependent variable is the

Public accountability and transparency index (PATI) – dependent variables	
PATI	Is the total public accountability and transparency disclosures index containing 57 items based 8 main themes, including: 5 items on overview of report (REP); 7 items on overview of university (UNI); 11 financial (FIN) items; 8 items on general services (GEN); 5 items on teaching services regarding process (TPRO); 8 items on teaching services regarding output (TOUT); 5 items on research services (RES); and 8 items on community services (COM). All 57 items have a score ranging from 0 to 6, resulting in a total potential score of 342; scaled to a value between 0 per cent and 100 per cent. Panel A of the Table AI contains the detailed 57 items and the scoring procedure
Internal governance variables – independent variables	
BIG4	1, if an HEI is audited by a big four audit firm (PricewaterhouseCoopers, Deloitte and Touche, Ernst and Young, and KPMG), 0 otherwise
GCOM	1, if an HEI has set up a separate governance committee, 0 otherwise
EFMS	The frequency of university executive team meetings
ETDIV	Percentage of female (ETDIVG) and non-white university executive team members (black, Asian and ethnic minorities – EBAME) to the total number of university executive team of an HEI
ETSIZE	Natural log of the total number of university executive team
GBMS	The frequency of governing board meetings
GBDIV	Percentage of female (GDIVG) and non-white governors (black Asian and ethnic minorities – GBAME) to the total number of governing board members of an HEI
GBSIZE	Natural log of the total number of governing board members
IGOV	Percentage of independent or lay governors to the total number of governing board members
QBACI	Audit committee quality index containing 14 provisions obtained mainly from the 2009 CUC Guide that takes a value of 1 if each of the 14 audit committee quality provisions is disclosed in the annual report, 0 otherwise; scaled to a value between 0 per cent and 100 per cent. These audit committee quality provisions are presented in Panel *B* of the Table AI
Interaction and instrumented variables	
I × BIG4	Interaction variable created by interacting with the internal governance variable (BIG4) with each of the three university executive management team variables (i.e. EFMS, ETDIV and ETSIZE). We also create similar interaction variables between the three university executive management team variables and the remaining 6 internal governance variables (I × BIG4, I × GCOM, I × GBSIZE, I × IGOV, I × GBDIV and I × QBACI), as part of our sensitivity analyses
Control variables	
FINP	Percentage of total annual financial surplus or deficit generated to total assets
GROWTH	Percentage of current year's total income minus previous year's total income to previous year's total income
IFUND	Percentage of total annual funding council income to total annual income
LNAGE	Natural log of an HEI age. It should be noted that age refers to the date on which the UK HEI gained its degree awarding powers or gained a university status
LEV	Percentage of total debt to total assets
LNTA	Natural log of total assets
LQUID	Percentage of net cash flows to total revenue
P_1992	1, if an HEI is post-1992 institution, 0 otherwise
RGROUP	1, if an HEI is a member of the Russell Group, 0 otherwise
RISK	Standard deviation of total income
TEA	Percentage of total endowment assets to total assets
VCG	1, if the vice-chancellor of an HEI is a male, 0 otherwise

Table I.
Summary of measures and variables

extent/level of voluntary disclosure (i.e. the PATI). We employ the widely applied content analysis method of codifying written "texts", "numbers/tables" and "graphs/pictures" into various categories to collect all our voluntary disclosure data (Gray and Haslam, 1990; Dixon *et al.*, 1991; Hackston and Milne, 1996; Banks *et al.*, 1997; Unerman, 2000; Gordon *et al.*, 2002; Nelson *et al.*, 2003; Maingot and Zeghal, 2008). Specifically, the PATI, which seeks to measure the quantity and quality of an HEI's voluntary disclosures contains 57 items, consisting of eight sub-sections: overview of report (REP); overview of university (UNI); financials items (FIN); general services (GEN); teaching services: process (TPRO); teaching services: output (TOUT); research services (RES); and community services (COM). As noted previously, the PATI is constructed based on a modified version (i.e. in order to reflect the UK HEIs context, as well as Coy and Dixon's (2004) original index, known as the PAI). To briefly explain, Coy and Dixon (2004) developed their PAI in the NZ HEIs setting by first carrying out a critical and in-depth construction of a voluntary disclosure index, particularly in relation to the use of dichotomous and un-weighted scores. They then identified a total of 130 voluntary disclosure items of relevance to the HEI sector and surveyed by a way of a Delphi exercise, 39 HEI stakeholders (ranging from student representative, finance officers to governing board members) on the relative importance of these items. After several iterations, Coy and Dixon (2004) narrowed the index to a total of 58 items classified into eight categories and a weighted approach was also implemented. Other than being used in the study of HEI voluntary disclosures, variants of Coy and Dixon's (2004) approach have been applied in other settings, such as local authorities, schools and public museums (e.g. Tooley and Guthrie, 2007; Ling Wei *et al.*, 2008). In light of the different UK regulatory context and the time period, we reviewed the voluntary disclosure items for a number of UK HEIs annual reports as a pilot and concluded that the majority of the items and headings were relevant to our study, except for the following changes. First, the overview of the university (UNI) has two additional items (risk and key performance indicators; KPIs) to reflect the growing attention paid by UK HEIs on risk management and KPIs, as reflected by reports from the Leadership Foundation for Higher Education (LFHE) (Schofield, 2009) and the CUC (2006). Second, we removed the items "achievements vs objectives and targets", "interpretive comment" and "analysis of campus services" since such narratives will be accounted for as part of the qualitative coding explained hereunder. Third, "general services" category (GEN) was reviewed to focus on students and resources information, whilst the staff-related items on training and health and safety were transferred to the community services heading (COM). Overall, however, we contend that these changes are relatively minimal and do not preclude a meaningful comparison to studies relying on the PAI or close variants thereof. Lastly, each item is scored from a minimum of 0 (representing no disclosure in the annual report) to a maximum of 6 (representing detailed provision of a range of qualitative and quantitative information), giving a maximum potential score of 342 points (6×57, see Table AI for detailed provisions and scoring procedure). The respective HEIs actual score is then expressed as a percentage of the total potential score. This procedure is also followed for the sub-sections or the sub-indices of the total PATI. Generally, and by construction, the PATI inherently seeks to measure both quality and quantity dimensions of HEIs voluntary disclosure. Therefore, the interpretation of our PATI is that the higher (lower) score, the higher (lower) the quality and quantity of voluntary disclosure and thus, the more "externally accountable and transparent" an HEI will appear to be.

Second, we collected data on internal governance mechanisms, including GBSIZE, IGOV, the frequency of GBMS, GBDIV, the QBACI, audit firm quality/size (BIG4) and the presence of a GCOM. Third, as governance in the UK HEIs is currently still a shared arrangement between lay governors and academic executives (Shattock, 2002, 2004; Kim, 2008; Trakman, 2008; Middlehurst, 2013; Parry, 2013; Taylor, 2013a), we create interaction variables between the governing board variables (GBSIZE, IGOV, GBMS, GBDIV, QBACI, BIG4 and GCOM) and the university executive team variables (university executive board size – ETSIZE, the frequency of university executive board meetings (EFMS), and university executive team diversity (ETDIV) to test for existence of potential interaction effect between the governing board and executive board variables on the extent of voluntary disclosure. Finally, to account for potential omitted variables bias (Gujarati, 2003; Petersen, 2009; Larcker and Rusticus, 2010; Wooldridge, 2010), we include a number of control variables. These include financial performance (FINP), growth in total income (GROWTH), income from funding council (IFUND), HEI's leverage (LEV), HEI's age (LNAGE), HEI's size (LNTA), HEI's liquidity (LQUID), HEI's risk (RISK), total endowment assets (TEA), vice-chancellor's gender (VCG), post-1992 dummy (P_1992) and Russell group dummy (RGROUP). For the sake of brevity, we do not articulate specific theoretical links between these control variables and our voluntary disclosure proxy (i.e. the PATI), but there is a rigorously established theoretical and empirical literature from the HEI or corporate sector which indicates that they can affect voluntary disclosure (Gray and Haslam, 1990; Coy *et al.*, 1991, 1994, 1997, 2011; Cutt *et al.*, 1993; Dixon *et al.*, 1991; Banks *et al.*, 1997; Coy and Pratt, 1998; Healy and Palepu, 2001; Gordon *et al.*, 2002; Eng and Mak, 2003; Nelson *et al.*, 2003; Barako *et al.*, 2006a, b; Collett and Hrasky, 2005; Kezar, 2006; Maingot and Zeghal, 2008; Allegrini and Greco, 2013).

Given the cross-sectional nature of our data, we begin our analyses by running cross-sectional ordinary least squares (OLS) regression. Therefore, and assuming all the hypothesised associations are linear, our main OLS cross-sectional regression model to be estimated is specified as follows:

$$\mathrm{PATI}_i = \alpha_0 + \beta_i \sum_{i=1}^{7} \mathrm{GOV}_i + \sum_{i=1}^{12} \beta_i \,\mathrm{CONTROLS}_i + \varepsilon_i \tag{1}$$

where *PATI* is the public accountability and transparency index, GOV refers to the seven internal governance variables, namely, GBSIZE, IGOV, GBMS, GBDIV, QBACI, audit firm quality/size (BIG4), and the presence of a GCOM, and CONTROLS refers to the control variables, including financial performance (FINP), income growth (GROWTH), income from funding councils (IFUND), HEI's leverage (LEV), HEI's age (LNAGE), HEI's size (LNTA), HEI's liquidity (LQUID), HEI's risk (RISK), total endowment asset (TEA), VCG, post-1992 dummy (P_1992) and Russel Group dummy (RGROUP).

We report the empirical analyses, including the descriptive statistics, bivariate and multivariate regression analyses and robustness analyses in the following sections.

Empirical findings and discussion

Descriptive statistics, univariate and bivariate analyses

Panels A, B and C of Table II present summary descriptive statistics to all, pre- and post-1992 UK HEIs PATI, respectively, whilst Panel D of Table II report summary statistics relating to the control variables. Examination of the summary descriptive statistics reveals a number of interesting findings. First, in line with the findings of past studies (Gray and Haslam, 1990; Banks *et al.*, 1997; Gordon *et al.*, 2002; Coy and Dixon, 2004; Maingot and Zeghal, 2008), there is a large degree of variability in our summary voluntary disclosure (PATI) measure. For example, the PATI ranges from a minimum of 14.91 per cent to a maximum of 78.36 per cent with the average (median) HEI disclosing or scoring 44.02 per cent (42.25 per cent). Similar widespread distributions can be observed in the sub-indices in Panel A of Table II, as well as those of the pre- and post-1992 HEIs presented in Panels B and C of the same table. For instance, voluntary disclosures relating to community services (COM) spans from a minimum of 0 per cent to a maximum of 83.33 per cent with the median (average) HEI scoring 50 per cent (51.08 per cent). Observably, the lowest average voluntary disclosure relates to teaching services: output and outcomes (TOUT), whilst the highest relates to university overview (UNI).

Second, a univariate test for significance of the mean and median indicates that the *PATI* scores of the pre-1992 ("old") and the post-1992 ("new") HEIs are not different from each other. This evidence offers support for the findings of Banks *et al.* (1997), which suggest lack of significant differences in voluntary disclosure behaviour between pre- and post-1992 UK HEIs.

Variable	Mean	Median	SD	Maximum	Minimum	Pre-1992-post-1992 Mean Diff.	Pre-1992-post-1992 Median Diff.
Panel A: public accountability and transparency index based on all 130 UK HEIs (%)							
PATI	44.02	42.25	12.57	78.36	14.91	0.94	1.61
COM	51.08	50.00	18.13	83.33	0.00	−1.25	0.00
FIN	51.29	50.00	13.70	83.33	12.12	1.69****	6.06***
GEN	47.85	47.92	14.81	83.33	8.33	0.25	3.13**
REP	35.05	33.33	11.12	66.67	10.00	−0.30	1.67**
RES	41.36	43.33	16.53	80.00	10.00	4.00***	3.34**
TOUT	27.48	24.07	14.58	77.78	0.00	0.37	−0.93
TPRO	35.69	33.33	16.53	80.00	0.00	1.61	3.33**
UNI	55.27	57.14	14.62	83.33	16.67	1.70****	1.19
Panel B: public accountability and transparency index based on 64 pre-1992 UK HEIs (%)							
PATI	44.50	43.57	13.26	68.71	14.91	–	–
COM	50.44	50.00	18.64	83.33	14.91	–	–
FIN	52.15	53.03	14.29	80.30	12.12	–	–
GEN	47.98	48.96	15.95	77.08	8.33	–	–
REP	34.90	35.00	11.98	60.00	10.00	–	–
RES	45.36	46.67	19.69	76.67	10.00	–	–
TOUT	27.66	24.07	14.31	57.41	1.85	–	–
TPRO	36.51	33.33	16.91	76.67	6.67	–	–
UNI	56.14	58.33	14.96	83.33	16.67	–	–
Panel C: public accountability and transparency index based on 66 post-1992 UK HEIs (%)							
PATI	43.56	41.96	11.95	78.36	21.93	–	–
COM	51.70	50.00	17.74	83.33	0.00	–	–
FIN	50.46	46.97	13.16	83.33	24.24	–	–
GEN	47.73	45.83	13.74	83.33	14.58	–	–
REP	35.20	33.33	10.30	66.67	20.00	–	–
RES	41.37	43.33	16.53	80.00	10.00	–	–
TOUT	27.30	25.00	14.96	77.78	0.00	–	–
TPRO	34.90	30.00	16.25	80.00	6.67	–	–
UNI	54.44	57.14	14.14	83.33	19.05	–	–
Panel D: control variables based on All 130 UK HEIs							
FINP (%)	2.76	2.34	2.49	9.89	−8.22	−1.36	−1.19
GROWTH (%)	1.86	0.73	9.61	71.72	−11.67	2.68*	3.08*
IFUND (%)	33.48	33.65	9.78	69.45	4.16	−8.61***	−9.26***
LEV (%)	44.70	43.55	16.50	92.88	10.48	−11.50***	−13.57***
LNAGE (years)	77.57	31.50	138.13	916.00	1.00	123.45***	69.00***
LNTA (£m)	361.76	246.01	457.26	3,540.00	12.92	285.65***	141.14***
LQUID (%)	0.97	0.40	5.96	23.36	−19.82	−0.39	−0.73
P_1992 (%)	50.77	100.00	50.19	100.00	0.00	–	–
RGROUP (%)	18.46	38.95	0.00	100.00	0.00	–	–
TEA (%)	4.56	1.30	7.82	57.24	0.00	6.08***	4.66***
VCG (%)	83.85	100.00	36.95	100.00	0.00	−7.20***	0.00

Notes: The table reports summary descriptive statistics relating to the public accountability and transparency index (PATI) and control variables, and their mean/median differences for pre- and post-1992 HEIs, respectively. Other variables are defined as follows: community services (COM); financial reporting (FIN); general services (GEN); report overview (REP); research (RES); teaching output (TOUT) and process (TPRO); university overview (UNI); financial performance (FINP); income growth (GROWTH); funding council income (IFUND); leverage (LEV); age (LNAGE); institutional size (LNTA); liquidity (LQUID); post-1992 dummy (P_1992); Russel Group dummy (RGROUP); total endowment assets (TEA); and vice-chancellor gender (VCG). Table I fully defines all the variables used. *,**,***,****Mean/median difference between pre- and post-1992 HEIs for the respective is significant at the 5, 1, 0.1 and 10 per cent levels, respectively

Table II.
Summary descriptive statistics of the accountability index and control variables for all 130 UK HEIs

At the same time, there is evidence of significant differences in some of the sub-indices. For example, pre-1992 HEIs discloses significantly more financial (FIN) and research (RES) information than their post-1992 counterparts. Third, the control variables in Panel D also exhibits similar wide spread in their distribution. For example, the oldest HEI is 91.6 years, whilst the youngest is only a year old with the average (median UK HEI being 77.57 years, with age referring to the date on which an institution gained its degree awarding powers or university status. Noticeably, and on average, 83.85 per cent of all VCs are males (VCG) with the small percentage of women VCs also mainly found in post-1992 HEIs. In short, pre-1992 institutions appear to have significantly higher growth in income (GROWTH), larger in size (LNTA), older in age (LNAGE), less geared in financing (LEV) and higher TEA than their post-1992 counterparts (Table III).

Third, Table IV reports descriptive statistics relating to the internal governance structures, which depict variability. For example, the average UK governing board (GBSIZE) has a membership of 24, ranging from a minimum of 14 to a maximum of 40 members. This is broadly in line with the recommendations contained in the 2009 CUC guide, which suggests that governing boards should between 12 and 25. Discernibly, our average GBSIZE of 24 is substantially higher than the mean of 15 members reported by Gordon *et al.* (2002) for a sample of 49 US Government HEIs, but significantly lower than the average GBSIZE of 39 that they reported for a sample of 51 private HEIs in the US. Comparatively, university executive size (ETSIZE) is smaller than governing boards with an average size of about 12 members. Consistent with the findings of surveys conducted by the CUC (2001, 2004, 2006), Schofield (2009) and recent work (Goodall and Osterloh, 2015; Havergal, 2015b), representation of women (GBDIVG – 26.28 per cent), and GBAME (6.21 per cent) on governing boards (GBDIV) are still relatively low at an average of 29.27 per cent. Comparatively, however, governing boards are more diverse than university executive teams, with only an average of 18.67 per cent women (*ETDIVG* – 10.24 per cent), and EBAME (1.35 per cent). The noticeable findings suggesting low levels of gender and ethnic diversity within UK HEIs governing boards are roughly consistent with those reported by past studies (e.g. Carter *et al.*, 2003; Ntim, 2015) that were conducted within profit-making public organisations. In line with the CUC's recommendations, governing boards are dominated by lay or IGOV with an average of 54.92 per cent, ranging from a minimum of 14.25 per cent and a maximum of 93.75 per cent. Similarly, the average governing board meets about 5 times (GBMS) in a year ranging from three to ten times compared with the average university executive team that meets about 13 times, ranging from a minimum of three and a maximum of 48 times in a year. Further, and on average, 20 per cent of HEIs have set up a separate GCOM, whilst a clear majority of about 76 per cent (increases to 88 per cent in pre-1992s, but decreases to 65 per cent in post-1992s) of HEIs is audited by a Big Four audit firm (BIG4), and thus offers support for the figure of 78 per cent reported by Xue and O'Sullivan (2013) in a sample of 113 UK HEIs.

Finally, and although the summary descriptive statistics generally suggest convergence of internal governance structures between pre- and post-1992 HEIs, a comparison of differences in means and medians indicates some significant differences in a number of governance arrangements. For example, pre-1992 HEIs tend to have significantly larger governing boards (GBSIZE), lesser number of lay or IGOV, more likely to be audited by a Big Four audit firm (BIG4), but less likely to voluntarily set a GCOM, and less diverse in terms of women (ETDVIG – university executive team gender diversity and GBDIVG – governing board gender diversity), and EBAME – university executive team ethnic diversity and GBAME – governing board ethnic diversity) representation.

Table IV reports the correlation matrix for the variables used in our regression analysis to test for multicollinearity. As a robustness check, we report both the Pearson's parametric and Spearman's non-parametric coefficients and, observably, the magnitude and direction of

Variable	Mean	Median	SD	Maximum	Minimum	Pre-1992-post-1992 Mean Diff.	Median Diff.
Panel A: internal governance variables based on all 130 UK HEIs							
BIG4 (%)	75.97	100.64	42.89	100.00	0.00	22.88***	0.00
GCOM (%)	20.77	0.00	40.72	100.00	0.00	−7.21***	0.00
EBAME (%)	1.35	0.00	3.43	21.97	0.00	−0.10	0.00
EFMS (no.)	13.10	12.00	7.32	48.00	3.00	1.00	0.00
ETDIV (%)	18.67	17.60	8.31	53.00	0.00	−8.93***	−5.90***
ETDIVG (%)	10.24	9.90	4.10	41.00	0.00	−2.79****	−0.96
ETSIZE (no.)	12.42	11.00	5.94	34.00	4.00	1.78****	2.50****
GBAME (%)	6.21	4.26	6.52	29.41	0.00	1.09	−0.76
GBMS (no.)	4.96	5.00	1.36	10.00	3.00	0.04	0.00
GBDIV (%)	29.27	28.29	11.58	68.72	4.76	−4.41***	−4.76***
GBDIVG (%)	26.28	25.36	10.14	52.63	4.76	−4.31***	−2.57****
GBSIZE (no.)	24.19	25.00	4.86	40.00	14.00	3.90**	2.00****
IGOV (%)	54.92	56.00	14.25	93.75	14.25	−11.92***	10.00***
QBACI (%)	61.76	64.29	14.88	100.00	21.43	3.35**	7.15**
Panel B: internal governance variables based on 64 pre-1992 UK HEIs							
BIG4 (%)	87.50	100.00	33.33	100.00	0.00	–	–
GCOM (%)	18.75	0.00	39.40	100.00	0.00	–	–
EBAME (%)	1.29	0.00	2.97	13.41	0.00	–	–
EFMS (no.)	13.61	12.00	8.01	48.00	3.00	–	–
ETDIV (%)	32.75	33.33	13.71	83.33	4.17	–	–
ETDIVG (%)	8.83	9.47	4.20	16.09	0.00	–	–
ETSIZE (no.)	13.33	12.50	5.19	27.00	5.00	–	–
GBAME (%)	26.93	26.24	12.14	59.09	4.76	–	–
GBMS (no.)	4.98	5.00	1.33	10.00	3.00	–	–
GBDIV (%)	26.93	26.24	12.14	59.09	4.76	–	–
GBDIVG (%)	24.10	24.00	10.69	47.62	4.76	–	–
GBSIZE (no.)	26.17	25.00	4.75	40.00	15.00	–	–
IGOV (%)	48.87	50.00	13.55	77.27	14.71	–	–
QBACI (%)	63.17	64.29	14.91	100.00	21.43	–	–
Panel C: internal governance variables based on 66 post-1992 UK HEIs							
BIG4 (%)	64.62	100.00	48.19	100.00	0.00	–	–
GCOM (%)	25.96	0.00	44.06	100.00	0.00	–	–
EBAME (%)	1.40	0.00	3.84	21.97	0.00	–	–
EFMS (no.)	12.61	12.00	6.60	48.00	4.00		
ETDIV (%)	21.68	19.23	13.23	48.54	4.86	–	–
ETDIVG (%)	11.62	10.43	16.52	38.63	0.00	–	–
ETSIZE (no.)	11.55	10.00	6.50	34.00	4.00	–	–
GBAME (%)	5.67	4.76	5.67	25.00	0.00	–	–
GBMS (no.)	4.94	5.00	1.40	9.00	3.00	–	–
GBDIV (%)	31.34	31.01	11.06	68.42	4.76	–	–
GBDIVG (%)	11.62	10.43	16.52	38.63	0.00	–	–
GBSIZE (no.)	22.27	23.00	14.00	34.00	0.00	–	–
IGOV (%)	60.79	60.00	12.40	93.75	29.63	–	–
QBACI (%)	59.82	57.14	16.48	100.00	0.00	–	–

Notes: The table reports summary descriptive statistics for all internal governance variables, and mean/median differences for pre- and post-1992 UK HEIs, respectively. Variables are defined as follows: audit firm size (BIG4); governance committee (GCOM); female (ETDIVG) and non-white (EBAME) executives (ETDIV); frequency of executive team meetings (EFMs); executive team size (ETSIZE); frequency of governing board meetings (GBMs); female (GDIVG) and non-white (GBAME) governors (GBDIV); governing board size (GBSIZE); independent governors (IGOV); and audit committee quality (QBACI). Table I fully defines all the variables used. *,**,***,****Mean/median difference between pre- and post-1992 HEIs for the respective is significant at 5, 1, 0.1 and 10 per cent levels, respectively

Table III.
Summary descriptive statistics of all internal governance variables for all 130 UK HEIs

Table IV. Pearson's and Spearman's correlation matrices of the variables for all 130 UK HEIs

Variable	PATI	BIG4	GCOM	EFMS	ETDIV	ETSIZE	GBMS	GBDIV	GBSIZE
PATI		0.246***	0.467***	0.115*	0.107****	0.106****	−0.076	0.125**	−0.025
BIG4	0.228***		0.122***	0.063	−0.003	0.002	0.093**	−0.034	0.243***
GCOM	0.422***	0.201**		−0.056	−0.045	0.043	0.000	−0.144**	−0.118
EFMS	0.133***	−0.014	−0.055		0.115*	0.063	−0.056	0.001	−0.043
ETDIV	0.111*	−0.107****	0.005	−0.057		0.107****	−0.003	0.045	−0.001
ETSIZE	0.046	0.074	0.0051	−0.051	0.078		0.106****	0.002	0.009
GBMS	−0.001	0.044	0.017	−0.096	−0.004	0.109***		0.050	0.048
GBDIV	0.179***	−0.019	0.140**	0.103	0.123***	0.198***	0.061		0.120**
GBSIZE	−0.080	0.245***	−0.121*	−0.054	−0.095*	0.010	0.073*	0.282***	
IGOV	0.236***	0.353***	0.131**	0.151	0.005	0.046	−0.062	−0.008	0.093**
QBACI	0.134***	−0.078	0.070	0.090	0.092	0.008	−0.043	0.111***	−0.058
FINP	0.289***	−0.265***	0.128**	0.041	0.449***	0.069*	0.098**	−0.027	0.197***
LNAGE	0.107*	0.289***	−0.053	−0.078	0.079*	0.157***	0.100**	0.008	0.083
LEV	0.086	0.244***	−0.011	−0.084	0.008	0.131***	0.036	−0.085**	0.041
LNTA	0.198***	0.351***	0.084	0.165**	−0.090**	−0.131***	−0.093	−0.011	−0.009
RGROUP	0.086	0.222***	0.119****	−0.186***	0.053	0.009	0.006	0.070	0.008
RISK	0.192***	0.284***	−0.048	−0.018	0.068	0.010	0.169***	−0.116***	0.104***
VCG	0.031	0.002	0.097	−0.056	0.034	0.058	0.070	−0.044	0.020

(*continued*)

Variable	IGOV	QBACI	FINP	LNAGE	LEV	LNTA	RGROUP	RISK	VCG
PATI	0.127**	0.174**	0.262***	0.088****	−0.075	0.174***	0.064	0.200***	0.046
BIG4	0.319***	0.178**	−0.198***	0.279***	0.247***	0.326***	0.222***	0.198***	−0.002
GCOM	0.137***	0.106****	0.079	−0.018	−0.009	−0.043	−0.097	−0.028	0.173***
EFMS	0.072	0.067	0.086	0.012	0.006	0.069	0.197***	0.034	0.006
ETDIV	−0.183***	0.222***	−0.017	0.092*	0.110****	−0.087	−0.021	0.014	−0.192***
ETSIZE	0.043	−0.043	−0.083	0.196***	−0.072	0.158***	0.204***	0.100	0.078
GBMS	−0.067	−0.023	0.032	0.037	0.001	−0.137**	0.101****	0.052	−0.151**
GBDIV	0.025	−0.117*	0.192**	−0.152**	−0.015	−0.038	−0.020	−0.176***	−0.053
GBSIZE	0.051	−0.016	−0.142**	0.316***	0.015	0.123***	0.190***	0.077	0.025
IGOV		0.242***	0.143**	−0.420***	0.112****	−0.266***	0.241***	0.126***	0.148***
QBACI	0.090**		0.050	0.059	0.025	0.012	0.081	0.090	0.037
FINP	0.076	0.047		−0.257***	−0.145***	−0.168***	0.009	−0.596***	115***
LNAGE	0.054	0.009	0.267***		−0.465***	−0.625***	0.506***	0.201	0.052
LEV	0.052	0.071**	0.161***	0.310***		0.283****	−0.315***	0.036	−0.069
LNTA	−0.063	−0.145***	−0.65	0.027	0.015		0.660***	0.105****	0.029
RGROUP	0.022	−0.063	0.070*	0.015	0.025	−0.219***		0.048	0.101****
RISK	0.032	−0.049	0.143	0.063	0.025	−0.037	−0.235***		−0.006
VCG	0.133***	0.030	0.112***	0.043	0.036	−0.023	0.168***	0.116***	

Notes: The bottom left half of the table contains Pearson's parametric correlation coefficients, whereas the upper right half of the table shows Spearman's non-parametric correlation coefficients. Variables are defined as follows: public accountability and transparency index (PATI); audit firm size (BIG4); governance committee (GCOM); frequency of university executive team meetings (EFMs); female and non-white executives (ETDIV); university executive team size (ETSIZE); frequency of governing board meetings (GBMs); female and non-white governors (GBDIV); governing board size (GBSIZE); independent governors (IGOV); audit committee quality (QBACI); financial performance (FINP); age (LNAGE); leverage (LEV); size (LNTA); Russell Group dummy (RGROUP); risk (RISK); and vice-chancellor gender (VCG). Table I fully defines all the variables used. *,**,***,****Correlation is significant at 5, 1, 0.1 and 10 per cent levels, respectively (two-tailed tests)

Table IV.

both coefficients are generally similar, and thus, signalling the absence of any serious non-normality problems. In a similar vein, the bivariate correlations among the variables are fairly low, which suggests that any remaining multicollinearity problems do not appear to be statistically harmful. In addition, we investigated (for brevity not reported, but available upon request) scatter plots for *P-P* and *Q-Q*, studentised residuals, Cook's distances and Durbin-Watson statistics for homoscedasticity, linearity, normality and autocorrelation, respectively, with the tests signalling no serious violation of these linear assumptions.

Moreover, and similar to the findings previous studies (Banks *et al.*, 1997; Gordon *et al.*, 2002; Nelson *et al.*, 2003; Coy and Dixon, 2004), Table IV reveals statistically significant associations among the internal governance variables, voluntary disclosure, and the control variables. For instance, consistent with our expectations, audit firm quality/size (BIG4), the presence of a GCOM, GBDIV on the basis of both gender (females or women governors) and ethnicity (GBAME – governors) (GBDIV), the percentage of IGOV, and the QBACI are statistically significant and positively associated with extent of voluntary disclosure (the PATI). By contrast, GBSIZE, and the frequency GBMS are negative, but statistically insignificantly related to the PATI. Furthermore, the findings in Table IV suggest larger (LNTA), older (LNAGE), riskier (RISK) and financially sound (FINP) HEIs have significantly higher PATI scores. In contrast, we do not find evidence that the Russell Group of Universities (RGROUP), leverage (LEV), and the gender of the vice-chancellor (VCG) have any significant effect on the PATI.

Multivariate regression analyses

Table V reports the results of the OLS regression analysis of the impact of our seven internal governance mechanisms – the frequency of GBMS, GBDIV, GBSIZE, IGOV, audit firm quality/size (BIG4), GCOM and audit committee quality (QBACI) and 12 control variables – financial performance (FINP), income growth (GROWTH), funding council income (IFUND), HEI's age (LNAGE), HEI's leverage (LEV), HEI's size (LNTA), HEI's liquidity (LQUID), post-1992 dummy (P_1992), Russell Group dummy (RGROUP), and VCG on PATI. Our findings generally indicate that some of our internal governance variables have the capacity to explain cross-sectional differences in the PATI.

First, the coefficients on IGOV, GBDIV, audit committee quality (QBACI) and GCOM in Model 1 of Table V are statistically significant and positively associated with the level of voluntary disclosure (the PATI), an indication that *H2-H6*, respectively, have empirical support. By contrast, GBSIZE, and GBMs frequency have a negative, but statistically insignificant relationship with the PATI, implying that *H1* and *H3* are not empirically supported. The former result is consistent with the finding in the US HEIs context (Gordon *et al.*, 2002) and chimes with the assessment that board size in excess of 10 do not bring incremental benefits (e.g. Yermack, 1996). Also, and although audit firm quality/size (BIG4) is positively associated with PATI, it is statistically insignificant, implying that *H7* is not empirically supported, as well as does not offer support for the significant negative finding of Gordon *et al.* (2002) in a sample of US HEIs. This may, however, reflect the different structure of the audit market at the time in the US (with a big six audit firms instead of big four audit firms) relative to the current context in the UK.

The significantly positive association between IGOV and PATI provides empirical support for the results of prior studies in both the HEI (Gordon *et al.*, 2002; Nelson *et al.*, 2003; Maingot and Zeghal, 2008; Schofield, 2009) and the mainstream voluntary disclosure literature (Eng and Mak, 2003; Ntim *et al.*, 2012; Samaha *et al.*, 2015) that suggest that having more independent governing board members tend to enhance voluntary disclosure. Theoretically, we suggest that this evidence offers empirical support for our multi-theoretical framework that incorporates insights from public accountability, legitimacy, stakeholder and resource dependence theories. For example, from a public

Table V. Effects of internal governance structures on public accountability and transparency disclosures

Independent variables (Model)	Dependent variables PATI (1)	COM (2)	FIN (3)	GEN (4)	REP (5)	RES (6)	TOUT (7)	TPRO (8)	UNI (9)
Governing board characteristics									
GBMS	−0.366	−0.088	−0.075	−0.369	−0.348	−0.250	−0.143	−0.060	−0.054
	(0.640)	(0.942)	(0.933)	(0.695)	(0.651)	(0.576)	(0.708)	(0.940)	(0.806)
GBDIV	0.210**	0.149****	0.180****	0.272***	0.200***	0.168****	0.158**	0.223***	0.196***
	(0.017)	(0.068)	(0.069)	(0.010)	(0.011)	(0.055)	(0.036)	(0.010)	(0.008)
GBSIZE	−0.183	−0.066	−0.293	−0.320	−0.304	−0.360	−0.370	−0.346	−0.350
	(0.453)	(0.860)	(0.290)	(0.278)	(0.631)	(0.203)	(0.262)	(0.268)	(0.243)
IGOV	0.145****	0.188****	0.146****	0.172****	0.132****	0.160****	0.154****	0.142****	0.175****
	(0.092)	(0.055)	(0.062)	(0.094)	(0.083)	(0.095)	(0.073)	(0.079)	(0.063)
Accounting/audit/governance committees									
BIG4	2.404	3.979	0.824	0.517	2.495	2.230	2.270	2.295	1.345
	(0.351)	(0.318)	(0.777)	(0.868)	(0.325)	(0.334)	(0.309)	(0.298)	(0.601)
GCOM	15.108***	19.247***	13.665***	14.559***	12.833***	13.030	14.142***	15.150***	13.140***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
QBACI	0.173****	0.139****	0.168****	0.144****	0.178****	0.123****	0.128****	0.180****	0.152****
	(0.053)	(0.087)	(0.055)	(0.068)	(0.054)	(0.094)	(0.090)	(0.051)	(0.058)
Control variables									
FINP	1.092****	1.022****	1.149****	1.147**	1.118****	1.215*	1.274****	1.208****	1.306****
	(0.061)	(0.053)	(0.081)	(0.037)	(0.090)	(0.050)	(0.087)	(0.074)	(0.068)
GROWTH	−0.580***	−0.404**	−0.302**	−0.439**	−0.440**	−0.306**	−0.425**	−0.460**	−0.452**
	(0.010)	(0.043)	(0.050)	(0.030)	(0.050)	(0.048)	(0.036)	(0.023)	(0.027)
IFUND	−0.160	−0.117	−0.321****	−0.175	−0.186	−0.160	−0.210	−0.184	−0.153
	(0.000)	(0.614)	(0.060)	(0.333)	(0.285)	(0.296)	(0.268)	(0.289)	(0.375)
LNAGE	−0.360	−0.398	−0.051	−1.182	−0.632	−1.195	−0.665	−1.132	−0.763
	(0.829)	(0.877)	(0.978)	(0.557)	(0.486)	(0.497)	(0.480)	(0.463)	(0.690)
LEV	−0.047	−0.076	−0.050	0.056	−0.088	−0.075	−0.098	−0.070	−0.085
	(0.533)	(0.514)	(0.558)	(0.554)	(0.435)	(0.462)	(0.405)	(0.457)	(0.428)
LNTA	1.947**	3.410***	1.276**	4.120***	3.363***	4.320***	3.436***	3.218***	4.249***
	(0.045)	(0.000)	(0.040)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LQUID	−0.160	−0.210	−0.317****	−0.250	−0.283	−0.246	−0.223	−0.280	−0.263
	(0.285)	(0.417)	(0.096)	(0.216)	(0.198)	(0.275)	(0.296)	(0.305)	(0.398)

(*continued*)

Table V.

Independent variables (Model)	Dependent variables PATI (1)	COM (2)	FIN (3)	GEN (4)	REP (5)	RES (6)	TOUT (7)	TPRO (8)	UNI (9)
P_1992	−2.422	−1.278	−1.379	−6.212	−1.065	−2.027	−1.020	−1.067	−2.046
	(0.512)	(0.961)	(0.928)	(0.165)	(0.178)	(0.129)	(0.692)	(0.474)	(0.380)
RGROUP	2.192	6.012	3.680	−1.296	−1.031	−1.050	−1.049	−1.057	−1.045
	(0.740)	(0.252)	(0.339)	(0.842)	(0.962)	(0.941)	(0.963)	(0.919)	(0.986)
RISK	0.933***	0.719***	0.808***	0.882***	0.731***	0.950***	0.949***	0.857***	0.845***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VCG	−2.394	−3.853	−2.972	−3.716	−3.031	−3.050	−3.049	−3.057	−3.045
	(0.740)	(0.459)	(0.510)	(0.278)	(0.462)	(0.241)	(0.363)	(0.219)	(0.296)
Constant	14.702	25.772	18.886	22.742	5.157	23.962	21.420	82.277	18.754
	(0.736)	(0.702)	(0.702)	(0.666)	(0.904)	(0.729)	(0.66)	(0.203)	(0.942)
Durbin-W.	1.996	2.050	2.050	1.804	1.585	1.320	1.651	1.857	1.568
F-value	4.355***	3.120***	3.281***	3.834***	2.171**	2.704***	3.301***	2.788***	2.350***
Adj. R^2	0.324	0.232	0.246	0.288	0.143	0.196	0.247	0.203	0.162
n	130	130	130	130	130	130	130	130	130

Notes: Variables are defined as follows: public accountability and transparency index (PATI); community services (COM); financial reporting (FIN); general services (GEN); report overview (REP); research (RES); teaching out (TOUT); teaching process (TPRO); university overview (UNI); governing board meetings (GBMs); governing board diversity (GBDIV); independent governors (IGOV); audit firm size (BIG4); governance committee (GCOM); audit committee quality (QBACI); financial performance (FINP); income growth (GROWTH); funding council income (IFUND); age (LNAGE); leverage (LEV); size (LNTA); liquidity (LQUID); Russell Group dummy (RGROUP); risk (RISK); and vice-chancellor gender (VCG). Table I fully defines all the variables used. *P*-values are in parentheses. *,**,***,****Significance at the 5, 1, 0.1 and 10 per cent levels, respectively accountability and legitimacy perspectives, IGOV are mindful of the public interest and societal expectations, and thus appear to contribute to better communication and transparency, via the extent of voluntary reporting and disclosure.

Similarly, HEIs can show greater commitment to high levels of voluntary disclosure in order to signal congruence of their goals with the initiatives, values, norms, rules and regulations that emanate from powerful stakeholders (i.e. stakeholder theory) (Freeman and Reed, 1983; Freeman, 1984; Donaldson and Preston, 1995; Gray *et al.*, 1995; Michelon and Parbonetti, 2012), such as central employers, government, parents, funding and research councils, and student and employee unions. One way of signalling such congruence and gain legitimacy from such influential stakeholders is to appoint more IGOV. Equally, voluntarily disclosing more information can offer access to crucial resources (i.e. resource dependence theory) (Pfeffer and Salancik, 1978; Branco and Rodrigues, 2006; Reverte, 2009), such as teaching and research funds from government, research and funding bodies, and students, by enhancing HEI legitimacy, public image and reputation.

The positive link between GBDIV and PATI provides empirical support for the findings of past studies that focussed on financial performance and voluntary disclosure (Carter *et al.*, 2003; Barako and Brown, 2008; Mahadeo *et al.*, 2012; Ntim *et al.*, 2012), which suggest that corporate boards of diverse ethnic and gender origins are likely to show greater commitment to increased voluntary disclosures. Similarly, and jointly, our GBDIV findings seem to provide high empirical support for legitimacy and stakeholder theoretical predictions. Specifically, they suggest that governing boards of diverse ethnic and gender origins may not only be able to improve public accountability and transparency disclosures by providing stronger links with internal and external stakeholders (i.e. stakeholder theory), but also provide access to crucial resources, such as research funds (i.e. resource dependence theory), and improve corporate legitimacy and reputation by signalling wider representation (i.e. legitimacy theory).

The positive link between audit committee quality (QBACI) and PATI provides empirical support for the stakeholder management and resource dependence perspective. Specifically, the audit committee is a critical governance and accountability mechanism with power to discipline, as well as hold top management accountable and responsible, and which is tasked with reporting directly to funding councils (via the "audit committee annual report"). Therefore, increased independence, expertise and responsibility often associated with audit committee work, supported by an internal audit function, makes its members more predisposed to react directly to instrumental concerns (stakeholder and resource dependence) regarding voluntary disclosure, as well as able to recommend top management to engage in increased levels of voluntary disclosure. At the same time, the presence of a GCOM is significantly associated with voluntary disclosure and arguably reflects public accountability and legitimacy motives in that its establishment signals a commitment to broader societal expectations about "good governance" and the public interest. Overall, our evidence implies that HEIs with strong audit and GCOMs, independent, and more diverse governing boards seem to be more "accountable" and "transparent" in the form of increased financial and non-financial voluntary disclosure.

Discernibly, the statistically insignificant link between GBSIZE and PATI, GBMS frequency and PATI, and audit firm quality/size (BIG4) and PATI fail to offer empirical support for our multi-theoretical framework in the context of the HEI sector. In contrast, but in line with the evidence from the correlation matrix, the coefficients relating to the control variables in Model 1 of Table V suggest that larger (LNTA), riskier (RISK) and better performing (financial) (FINP) HEIs are more likely to make significantly more voluntary disclosures, whilst those experiencing faster growth in terms of total income (GROWTH) tend to make significantly less voluntary disclosures. Of particular interest was the result that HEIs with a higher variability in income tend to disclose more information.

Theoretically, this implies that engaging in increased voluntary disclosures can be an effective means by which legitimacy may be maintained by gaining the support of powerful stakeholders, including offering critical resources, such as capital, contracts and contacts, especially in times of crisis when a HEI's ability to exist and maintain sustainable operations is under threat.

Second, our results so far indicate that cross-sectional variations in the PATI can largely be accounted for by some of our internal governance variables, but since the PATI incorporates voluntary disclosures from eight different sub-themes, it is possible for the relationship between each sub-theme and the internal governance variables to differ, with some potentially having strong relationships with the internal governance variables and others maintaining weak connections. Hence, to investigate the association between each sub-theme and the internal governance variables, we re-run Equation (1) by replacing the PATI with either the community services (COM), financial reporting (FIN), general services (GEN), report overview (REP), research (RES), teaching output (TOUT), teaching – process (TPRO), or university overview (UNI) at a time, and the results are, respectively, reported in Models 2-9 of Table V. Noticeably, the coefficients on GBDIV, IGOV, the presence of a GCOM and audit committee quality (QBACI) remain statistically significant and positively related to all eight voluntary disclosure sub-themes, whereas those on GBMS frequency, GBSIZE, and audit firm quality/size (BIG4) remain positive and statistically insignificant, providing additional empirical support for our previous findings.

Robustness analyses

We conduct a number of additional analyses in order to specifically test *H8*, but generally as well as to test the robustness of our results. First, as has been previously argued, the governance of HEIs has inherently been a "shared" arrangement between a senior university management team and an externally dominated governing board, often involving close interactions among themselves (Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Middlehurst, 2004; Shattock, 2002, 2004; Kim, 2008; Trakman, 2008), although concerns as to changes in this arrangement to a more executive-led governance abound in the UK context and abroad (Nagy and Robb, 2008; Parker, 2013; Middlehurst, 2013; Taylor, 2013a). Therefore, our argument is that the role of the individual internal governance mechanisms on the extent of voluntary disclosure may be strengthened by interacting them with university executive management variables, namely university executive team size (ETSIZE), university ETDIV, as measured by the number of women (ETDIVG) and non-whites – EBAME, and the EFMS.

The findings of our interaction analyses are reported in Models 1-7 of Table VI. Specifically, in Models 1-3 of Table VI, we interact each of the university executive variables (EFMS, university ETDIV, and university ETSIZE) with the seven internal governance variables (GBMS frequency, GBDIV, GBSIZE, IGOV, audit firm quality/size – (BIG4), GCOM presence, and audit committee quality – QBACI), respectively. In Models 4 and 5, we split university ETDIV into its two components of university executive team gender (ETDIVG) and ethnic (EBAME) diversity, and interact ETDIVG (Model 4) and EBAME (Model 5) with each of the seven internal governance variables. In Models 6 and 7, we interact the three university executive variables simultaneously with each of the seven internal governance variables, but we exclude GBMS frequency, GBSIZE, and audit firm quality/size (BIG4) in Model 6, as they are persistently insignificant. Statistically significant and positive coefficient on GBDIV, IGOV, GCOM presence, and audit committee quality (QBACI) in Models 1-7 is discernible, whilst negative, but statistically insignificant coefficient on GBMS frequency, GBSIZE, and audit firm quality/size (BIG4) is noticeable. Observably, the interaction has strengthened the statistical power of our all our models. This new evidence implies that the university executive team variables have a moderating or interacting effect

Table VI. Effects of internal governance structures on public accountability disclosures: interaction effects, fixed-effects and IV

	Dependent variables								
Independent variables (Model)	PATI (1)	PATI (2)	PATI (3)	PATI (4)	PATI (5)	PATI (6)	PATI (7)	PATI(FE) (8)	PATI(IV) (9)
Governing board characteristics									
GBMS	−0.604	−0.210	−0.060	−0.230	−0.198	–	−0.420	−0.380	−0.532
	(0.244)	(0.690)	(0.997)	(0.489)	(0.596)	–	(0.274)	(0.347)	(0.254)
GBDIV	0.364**	0.352****	0.342****	0.330****	0.346****	–	0.375**	0.380**	0.399**
	(0.049)	(0.060)	(0.064)	(0.071)	(0.062)	–	(0.032)	(0.028)	(0.022)
GBSIZE	−0.084	−0.070	−0.065	−0.063	−0.040	–	−0.078	−0.043	−0.090
	(0.836)	(0.876)	(0.897)	(0.903)	(0.985)	–	(0.843)	(0.972)	(0.803)
IGOV	0.292****	0.283****	0.289****	0.265****	0.269****	0.354**	0.295****	0.302****	0.308****
	(0.075)	(0.080)	(0.076)	(0.090)	(0.087)	(0.048)	(0.064)	(0.058)	(0.054)
Accounting/audit/governance committees									
BIG4	9.197****	9.065****	9.086****	9.095****	9.110****	9.134****	9.075****	9.208****	9.348****
	(0.076)	(0.089)	(0.083)	(0.080)	(0.079)	(0.075)	(0.086)	(0.073)	(0.067)
GCOM	17.562***	19.320***	16.376***	18.206***	12.766***	14.321	17.387***	18.348***	19.654***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
QBACI	0.289****	0.276****	0.270****	0.286****	0.254****	0.343**	0.290****	0.312****	0.325****
	(0.067)	(0.073)	(0.078)	(0.069)	(0.083)	(0.040)	(0.062)	(0.056)	(0.053)
Interaction variables									
Governing board characteristics									
I × GBMS	−0.713	−0.245	−0.084	−0.298	−0.208	–	−0.482	−0.416	−0.654
	(0.221)	(0.653)	(0.987)	(0.434)	(0.492)	–	(0.246)	(0.310)	(0.217)
I × GBDIV	0.396***	0.363**	0.384***	0.385***	0.388***	0.402***	0.410***	0.426***	0.438***
	(0.000)	(0.049)	(0.010)	(0.008)	(0.005)	(0.000)	(0.000)	(0.010)	(0.000)
I × GBSIZE	−0.090	−0.085	−0.069	−0.070	−0.053	–	−0.086	−0.054	−0.096
	(0.825)	(0.853)	(0.875)	(0.885)	(0.972)	–	(0.869)	(0.956)	(0.785)
I × IGOV	0.306****	0.310****	0.318****	0.325****	0.296****	0.356**	0.329****	0.330****	0.345****
	(0.072)	(0.070)	(0.065)	(0.063)	(0.079)	(0.042)	(0.060)	(0.058)	(0.053)
Accounting/audit/governance committees									
I × BIG4	9.206****	9.167****	9.187****	9.186****	9.074****	9.020****	9.324****	9.330****	9.356****
	(0.072)	(0.078)	(0.086)	(0.089)	(0.092)	(0.098)	(0.065)	(0.063)	(0.060)
I × GCOM	18.386***	19.454***	16.897***	18.643***	12.954***	14.532	17.654***	18.578***	19.896***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

(*continued*)

Table VI.

	Dependent variables								
Independent variables (Model)	PATI (1)	PATI (2)	PATI (3)	PATI (4)	PATI (5)	PATI (6)	PATI (7)	PATI(FE) (8)	PATI(IV) (9)
I × QBACI	0.294****	0.282****	0.275****	0.330****	0.302****	0.290****	0.338****	0.342****	0.350*
	(0.065)	(0.071)	(0.073)	(0.060)	(0.076)	(0.080)	(0.056)	(0.054)	(0.050)
Control variables	Included	Included	Included	Included	Included	Included	Included	Included	Included
Constant	18.240	5.864	8.913	8.697	7.687	7.875	10.469	14.432	16.531
	(0.402)	(0.896)	(0.840)	(0.198)	(0.898)	(0.831)	(0.653)	(0.186)	(0.143)
Durbin-W.	2.009	2.074	1.877	2.012	1.965	1.994	2.070	2.084	2.098
F-value	5.479***	5.596***	5.355***	5.482***	5.230***	5.326***	8.420***	9.843***	10.240***
Adj. R^2	0.463	0.471	0.454	0.463	0.440	0.453	0.476	0.485	0.493
n	130	130	130	130	130	130	130	130	130

Notes: Table I fully defines all the variables used. Models 1 to 7 seek to test for the existence of an interaction effect between the internal governance structures and public accountability and transparency disclosures by interacting our three university executive management team variables (EFMS, ETDIV, and ETSIZE) with the our seven internal governance variables. Specifically, in Model 1, we interact EFMS with each of the seven internal governance variables and re-run the regression by including the newly created seven interactions variables in addition to the seven original variables and the control variables. In Model 2, we interact ETDVI with each of the seven internal governance variables and re-estimate the regression by including the newly created seven interactions variables in addition to the seven original variables and the control variables. In Model 3, we interact ETSIZE with each of the seven internal governance variables and re-estimate the regression by including the newly created seven interactions variables in addition to the seven original variables and the control variables. In Models 4 and 5, we split the ETDVI variable into ETDIVG (i.e. the percentage of women members of university senior executive management team) and EBAME (i.e. percentage of Black, Asian and Ethnic Minorities members of university senior executive management team) interact each with each of the seven internal governance variables and re-estimate the regression by including the newly created seven interactions variables in addition to the seven original variables and the control variables in Models 4 and 5, for ETDIVG and EBAME, respectively. In Models 6 and 7, we interact all three university executive team variables (i.e. EFMS, ETDIV, and ETSIZE) simultaneous with each of the seven internal governance variables and re-estimate the regression by including the newly created seven interactions variables in addition to the seven internal governance original variables and the control variables, but we exclude *GBMS* and *GBSIZE* in Model 6, as they are persistently not statistically significant. In Models 8 and 9, we run fixed-effects (*FE*) and instrumental variables (*IV*) to account for the existence of potential firm level fixed-effects and endogeneity problems, respectively. *P*-values are in parentheses. *,**,***,****Significance at the 5, 1, 0.1 and 10 per cent levels, respectively on the connection between the internal governance variables and the level of voluntary disclosure (the PATI), and thus *H8* is empirically supported. It also means that our new evidence is robust to the existence of any potential interaction effects.

Second, as Tables II and III show, UK HEIs differ in a number ways, such as financial performance, governance arrangements, age, risk levels and financial structure, amongst others. This can lead to a situation in which our summary voluntary disclosure measure (the PATI) and the internal governance mechanisms may be jointly and dynamically influenced by unobserved HEI-specific differences, such as university executive talent, institutional culture and HEI complexity (Gujarati, 2003; Guest, 2009; Wooldridge, 2010), which simple OLS estimations may be unable to identify (Petersen, 2009; Larcker and Rusticus, 2010). For example, there may arguably be cultural, institutional, managerial and operational differences among ancient universities (e.g. Cambridge, Glasgow and Oxford), Russell Groups (e.g. Birmingham and Manchester) and post-1992 HEIs (e.g. Brighton and Huddersfield), which may impact differently on the level of voluntary disclosures. Thus, we estimate a fixed-effect regression with the aim of accounting for potential endogeneity problems that may arise from unobserved HEI-specific differences. Thus, and assuming all the predicted associations are linear, we re-calculate Equation (1) as a dummy variable fixed-effect regression specified as follows:

$$\mathrm{PAT}_i = \alpha_0 + \beta_i \sum_{i=1}^{7} \mathrm{GOV}_i + \sum_{i=1}^{12} \beta_i \,\mathrm{CONTROLS}_i + \gamma_i + \varepsilon_i \qquad (2)$$

where everything is unchanged as specified in Equation (1) except γ which refers to the HEI-specific fixed-effects, consisting of a vector of dummy variables to represent the sampled HEIs. Statistically significant and positive effect of GBDIV, IGOV, GCOM presence, and audit committee quality (QBACI) on the PATI, whilst negative, but statistically insignificant coefficient on GBMS frequency, GBSIZE, and audit firm quality/size (*BIG4*) is apparent in Model 8 of Table VI, and thereby indicating that our evidence appears to be not sensitive to the presence of any HEI-specific heterogeneities.

Finally, and to control for potential endogeneities that may be due to important omitted variables, we use the popular instrumental variables (IV) methodology (Beiner *et al.*, 2006; Ntim and Soobaroyen, 2013b). However, to ensure that the IV methodology is appropriate (e.g. Beiner *et al.*, 2006), we first execute Durbin-Wu-Hausman exogeneity test to test for the presence of an endogenous voluntary disclosure (the PATI)-internal governance (GOV) variables nexus. Applied to Equation (1), the test is unable to accept the null hypothesis of exogeneity, and thus, we infer that the IV methodology may be suitable and that our prior OLS results may be spurious. The implementation of the IV methodology consists of two stages. In Stage 1, and based on the findings of the previous theoretical and empirical literature (Jensen and Meckling, 1976; Beekes and Brown, 2006; Bozec and Bozec, 2012; Ntim *et al.*, 2012), we conjecture that each of our seven internal governance variables will be determined by all the 12 control variables. In Stage 2, we use their predicted parts as instruments and re-estimate Equation (1) as follows:

$$\mathrm{PATI}_i = \alpha_0 + \hat{\beta}_i \sum_{i=1}^{7} \mathrm{GOV}_i + \sum_{i=1}^{12} \beta_i \,\mathrm{CONTROLS}_i + \varepsilon_i \qquad (3)$$

where everything is unchanged as labelled in Equation (1) except that we use the predicted parts from the first-stage regressions as instruments for the seven internal governance variables. The results presented in Model 9 of Table VI are mainly in line with those reported in Models 1 of Table VI, and hence indicating that our findings are insensitive to potential endogeneities that may come from omitting important variables. The minor upward adjustments in the magnitude of the coefficients on the internal governance variables in Model 9 of Table VI in comparison with those in Model 1 of Table VI is in the main consistent with previous findings, which suggest that instrumented parts of internal governance variables tend to predict voluntary disclosure more strongly than their un-instrumented parts (Beiner *et al.*, 2006; Larcker and Rusticus, 2010; Ntim *et al.*, 2012).

Overall discussion, implications and conclusions

Internationally, the HE sector has and continues to experience rapid changes and/or reforms (Jones *et al.*, 2001; Bennett, 2002; Knight, 2002; Salter and Tapper, 2002; Oxholm, 2005; Toma, 2007; Hordern, 2013; Middlehurst, 2013; Taylor, 2013a, b). Specifically, the international HE environment has been characterised by large student numbers, low-government funding often driven by public sector budget cuts, but tight control and regulation, high levels of national and international competition, more enlightened multiple stakeholders, and mass importation and application of neo-liberal economic ideas mainly in the form of NPM techniques into HEIs (Shattock, 1998, 1999; Dearlove, 2002; Middlehurst, 2004; Kim, 2008; Trakman, 2008; Melville-Ross, 2010; Parker, 2011; Parry, 2013; Rowlands, 2013). These changes and/reforms have brought greater emphasis on financial imperatives, the need for operational efficiency, strong internal governance and heightened discourses of "accountability" and "transparency" (Hordern, 2013; Middlehurst, 2013; Parry, 2013; Rowlands, 2013; Taylor, 2013a, b). In particular, the implementation of the recommendations of the Browne (2010) report on UK HE funding precipitated largely by the 2007/2008 global banking crisis and subsequent deep cuts in HE sector funding in 2010 by the UK Central Government has led to concerns about financial sustainability, efficiency, effectiveness and competitiveness (UUK, 2011). This has motivated us to first consider how HEI voluntarily disclose information in their annual reports as a mechanism of external accountability and transparency, and second whether extant governance structures, borne out of several UK HE reforms, play a role in improving public accountability.

First, using a very recent data set from 130 UK HEIs, we find that there is wide variability in the level of voluntary disclosures, but the overall score is 44.02 per cent (42.25 per cent) with limited differences between pre-1992 and post-1992 HEIs. Whilst we did not explicitly compare our summary voluntary disclosure measure (the PATI) level in 2012 to previous years, our reading of the evidence from the fairly dated UK studies (e.g. Gray and Haslam, 1990; Banks *et al.*, 1997) shows very little improvement in the level of voluntary disclosures. For example, Banks *et al.* (1997) find that the disclosure level by a sample of HEIs (53, 59 and 79 institutions, respectively) in 1992, 1993 and 1994 remained almost stable at about 40 per cent of the maximum disclosure score. A similar pattern, but marginally lower level of disclosure, is found for the case of Canadian institutions (Nelson *et al.*, 2003) and US universities and colleges (Gordon *et al.*, 2002), and the only exception has been the case of NZ universities (Coy and Dixon, 2004). The disclosure pattern on a sub-theme level is not overtly different although it is found that financial- and community-led disclosures achieve higher scores than teaching- and research-related ones. Several, and not necessarily competing explanations, can be put forward for the relatively low disclosure level and the apparent lack of change from previous studies. First, it may be argued that the 2010 reforms, whilst arguably having far reaching consequences compared to previous changes, had yet to have a full impact on university voluntary disclosure strategies in 2012. Thus, ours is a timely study examining voluntary disclosure behaviour of UK HEIs in the first year of implementing major changes/reforms to funding and hence, arguably relatively short for the anticipated major cultural shift in voluntary disclosure behaviour to be realised. Second, the emphasis of our study on annual report disclosures does not consider the possibility that HEIs rely on other forms of public communication (e.g. websites, press releases, media coverage of teaching and research performance), which may have increased as a result of the contextual pressures, with an expectation of the latter having a greater impact and which may be more amenable to the dissemination of "good" news outside of a formal accountability mechanism, such as the annual report. Third and although methodologically similar in orientation, the Coy and Dixon's (2004) voluntary disclosure measure, which we adopted is slightly different in content compared with those used by prior UK studies and thus, not constituting a like-for-like comparison of voluntary disclosure levels. For example, the summary voluntary disclosure measure used by Banks *et al.* (1997, pp. 216-217, 220) and Nelson *et al.* (2003, pp. 84, 88, 92) consisted of 26 voluntary disclosure items compared with 58 in Coy and Dixon's case (*PAI*) and 57 in our case (PATI). Thus, our PATI may not be necessarily capturing like-for-like improvements or changes in the levels of voluntary disclosures by UK HEIs in relation to those reported by prior UK studies. Finally, and perhaps more importantly, the heavily regulated and funding context of the UK, whereby universities already provide information (often on a private or aggregated basis) to various agencies (HESA, funding councils – DENI, HEFCE, HEFCW and SHEFC, and grant agencies, fair access regulators, research panels, accreditation bodies) may have led to a situation, whereby the primacy of such stakeholders and resource providers is already addressed and/or managed using "privileged" or "private" forms of communication and accountability[9]. As a result, public and comprehensive displays of performance, actions and activities in the annual report are less emphasised, thereby plausibly leading to our results. One implication thereof is that Coy *et al.*'s (2011) expectation of "fairness, accessibility and distribution" (p. 26) germane to the authors' concept of public accountability does not seem to be materialising, or at least improving, in the UK sector, and we would go as far as conjecture that similar patterns might be at play in other countries where the HEI sector faces similar pressures (e.g. Australia, as per Nagy and Robb, 2008). As a consequence, and as predicted by Coy *et al.* (2011), "accountability" to the few is heightened whilst the potential for open challenge on the basis of comprehensive "public accountability" disclosure is limited and arguably may be contributing to the rise of, and a lack of resistance to, a corporatised university model. Drawing from Parker (2011), two additional implications can be related to the apparent focus on financial-led voluntary disclosures relative to other types of disclosures and the lack of significant differences between pre- and post-1992 institutions. The former may signal the changing mission and strategy of universities towards commercialisation and corporatisation, whilst the latter may be symptomatic of a behaviour of homogeneity across HEIs to respond to similar coercive pressures from regulators and dominant funders. Informed by the above, we would also conclude that the instrumental motives of stakeholder and resource dependencies are more prevalent explanations of the current pattern of disclosures, compared to the seeking of legitimacy and public accountability to the broader social constituencies.

Second, and in spite of the various governance reforms introduced in the UK HEI sector over the past 30 years (i.e. since the Jarratt's (1985) report), there has been virtually no detailed examination of the effectiveness of the governance reforms with the exception of anecdotal findings and discussions arising from the failure of specific governing boards to monitor or oversee HEI management. Yet, concerns about the effectiveness and impact of HEI governance work remain very topical (e.g. Schofield, 2009; Greatbatch, 2012). In this respect, our results bring much needed evidence on the contribution of governing bodies to the extent of voluntary disclosure. Specifically, we find that GBDIV, independent or lay governors, the presence of a GCOM and audit committee quality are positively related to the extent of voluntary disclosure. By contrast, we find that GBSIZE, the frequency of GBMs, and the audit firm size do not have any significant impact on voluntary disclosure. Since there are very few studies which explicitly examine the link between accountability disclosures, governance and other HEI characteristics, the scope for comparison is quite limited. Nonetheless, we concur with Gordon *et al.*'s (2002) results that audit firm size, board size and leverage have no significant impact on the extent of voluntary disclosures. One implication of this finding is a potentially inadequate policy on the reduction of board size in the current CUC guidance, with reported mean and median figures being still very close to the maximum threshold (i.e. 25 – a number that is considered to be very far from the normal expectations for an effective board in the corporate sector of ten). Such an unwieldy structure may potentially jeopardise the ability of a governing board to be sufficiently cohesive and decisive to have an influence or bearing on university management. Notwithstanding, the results on the significant positive variables collectively points out that the real emphasis needs to be on the composition, expertise, diversity and independence of the board which, at this stage, is not sufficiently outlined in the CUC code. As an illustration of the issue, it is probably telling that a recent consultation in Scotland on determining the structure of HEI governing boards (Von Prondzynski, 2012; Havergal, 2015b) saw on one hand, broad support by HEIs for more women representation, but on the other hand, fierce resistance to the recommendation that the chair (and staff/student members) be directly elected as opposed to being appointed. In effect, our results would support the latter recommendation in that currently HEIs with independent and more diverse governing boards tend, on average, to demonstrate more commitment towards public accountability and disclosure.

Third, and distinctively, we find that university executive team structures have a significant moderating effect on the association between internal governance mechanisms and voluntary disclosure. In particular, we find that university ETSIZE, the frequency of executive team meetings and university ETDIV strengthens internal governance-voluntary disclosure association. Thus, our finding offers support for the idea that HEI internal governance arrangements which emphasise a "shared" leadership team, consisting of senior academic executives and governing boards dominated by externally appointed independent or lay governors (Shattock, 1998, 1999; Bennett, 2002; Dearlove, 2002; Knight, 2002; Salter and Tapper, 2002; Middlehurst, 2004, 2013; Taylor, 2013a). Conversely, the lack of a "shared" form of governance, where either the executive management adopts a corporatised authoritarian style of decision making (Parker, 2011) or where governing boards purely or primarily operate as monitoring mechanisms will not be associated with a higher level of voluntary disclosure. At a time when many commentators are highlighting the rise of the corporatised university (Middlehurst, 2013; Nagy and Robb, 2008; Parker, 2013), and of its associated top-down "scientific management" style (Parker, 2011), the interaction results suggest that a democratic form of governance may still be the most appropriate and effective way of achieving not only better accountability, but also better outcomes, both from a managerial and academic perspective. We, therefore, call for further research to examine more closely the determinants of HEI financial and non-financial performance, with an emphasis on the influence of governance arrangements and executive team characteristics such that an evidence can be obtained on the appropriateness and effectiveness, of private-sector models of governance that have been employed in the HEI sector. In particular, future research can examine the extent to which the "shared" governance model is able to resolve potential conflicts and maintain harmonious work relationships among governors, chair of governors and the vice-chancery that can result in improvement in trust, performance and reputation of the institution.

Fourth, our findings have important policy, practical, regulatory and theoretical implications. On the one hand, our evidence suggests that good internal governance structures tend to enhance accountability and transparency within HEIs, yet internal governance structures still differ substantially among UK HEIs. On the other hand, our evidence also shows the need to review some of the guidance in relation to GBSIZE, independence and diversity. Collectively, the study offers regulatory authorities, policy makers and stakeholders, such as the CUC, various funding agencies (i.e. DENI – Northern Ireland, HEFCE – England, HEFCW – Wales and SHEFC – Scotland), the LFHE, accountancy bodies, employee and student unions, and research funding councils a greater impetus to review, strengthen, monitor and enhance compliance with governance rules. With regards to voluntary disclosures, we would also suggest that appropriate sector-based institutions, such as the British Universities Finance Directors Group, may consider developing voluntary disclosure guidance and seek regulatory backing for such guidance. Thus, from a policy and regulatory perspective, establishing a sector wide enforcement and compliance body that will specifically monitor the levels of compliance and disclosure of relevant governance and voluntary reporting requirements can be a step in the right direction. For governors, executives and managers of HEIs, our evidence suggests that there is the need for a major shift in their governance, reporting and voluntary disclosure practices. The introduction of full-tuition fees and the transfer of student funding from funding bodies (e.g. HEFCE) to the Students Loans Company (SLC), for example, signals the emergence of new and powerful stakeholders (e.g. alumni, SLC, parents, prospective students and employers) who need to be equally carefully managed and satisfied in order for HEIs to maintain sustainable operations. Similarly, market-like conditions and direct competition has been introduced in the UK HEI sector with the removal of caps on the number of students that can be admitted by an HEI. Arguably, in this new competitive and market/quasi-market environment, accountability will need to be moved beyond private accountabilities (e.g. accountability returns) to traditional stakeholders, such as funding councils to broader public accountability to new and emerging equally powerful stakeholders, such as alumni, students and parents. One way by which such public accountability can be achieved is to produce comprehensive annual reports. Specifically, annual reports should not only contain comprehensive disclosures relating to the financial performance of the HEIs, but also important voluntary non-financial disclosures relating to a wide range of relevant issues, such as governance and risk management, teaching and research quality, career and employability prospects, alumni, accessibility and social mobility issues, human resource and intellectual capital, academic and international reputation, and social, environmental and community contributions, amongst others. From our multi-theoretical perspective, therefore, HEIs that will be able to commit to greater public accountability (public accountability theory) through increased voluntary disclosures may not only enhance their legitimate right to exist (legitimacy theory), but may gain the support of powerful stakeholder (stakeholder theory), such as alumni, communities, parents and students, who may offer them access to critical resources, such as capital (e.g. tuition fees), that are necessary for maintaining sustainable operations.

Finally, our findings are robust across a raft of econometric models that adequately account for different types of endogeneities, as well as alternative internal governance and disclosure measures. Yet, its limitations need to be clearly acknowledged. As a result of the labour intensive nature of the data collection, our sample is limited to UK HEIs. Future studies may use a longitudinal data set within a country or cross-country context, which may arguably enhance the generalisability of their findings, and also consider more explicitly whether one theoretical perspective better explains voluntary disclosures relative to other theories. Similarly, due to data limitations, our analyses have focussed mainly on internal governance structures. Future studies may improve their analysis by investigating how external governance mechanisms, such as external regulations (e.g. from funding and research agencies), central government policies, student and employee unions' activism, economic factors and competition drive voluntary public accountability disclosure practices. In addition, as we examine the introduction of a "market or quasi-market" HE sector in the UK in its first year of operation in which its full impact might not have been realised, future studies may provide new insights by re-examining our evidence and rely on our voluntary

PATI-related disclosure models to enable comparisons over time. Moreover and similar to all prior quantitative-oriented archival studies of this nature, our measures for governance and voluntary disclosures may or may not fully reflect how HEI executives, governors, academics, managers, regulators and funding bodies operate in practice, and thus our evidence of cross-sectional associations among governors, HEI executives and voluntary disclosure should be treated with some caution. In this case, future research may improve on our findings by conducting more in-depth analysis by, for example, interviewing HEI executives, governors, academics, students, funding and research bodies, internal and external auditors, regulators and policy makers relating to governance, performance and public accountability issues.

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Notes

1. We acknowledge that annual report disclosures represent only one mechanism of "formal" public accountability and transparency and that HEIs communicate externally using a wide range of media. However, according to Coy *et al.* (2011), annual report information is an important mechanism enabling "open and on-going public scrutiny" (p. 25) of the activities of the organisation. In addition, the contents of the annual report have to be formally reviewed and approved by the governing board and provides an opportunity to assess the degree of influence (if any) of governing structures on public accountability orientation of HEIs.
2. Such "academic democracy" was more evident within the internal governance structures of the elite Oxford and Cambridge ("Oxbridge") institutions. For example, within its royal charter, "Regent House" is the central governing body of the University of Cambridge, made up of over 3,000 academics, university officers and college fellows, who are equally responsible and accountable for its governance (Trakman, 2008).
3. It should be noted that the implementation of the recommendations of the Robins Report effectively created a two-tier HE sector in the UK, consisting of: a large number of newly established set of polytechnics or technical and vocational institutions; and a small number of old, but well established group of universities (Bennett, 2002; Kim, 2008; Hordern, 2013).
4. We note that this coincided with a period of large-scale implementation of neo-liberal economic ideologies in the form of mass privatisation of state-owned corporations, especially utilities, re-organisation of inefficient essential public services, such as the national health service through the application of new public management techniques, and the emergence of public-private partnerships in the form of public finance initiatives, as way financing capital projects in the UK public sector (Bennett, 2002; Knight, 2002; Shattock, 2004; Middlehurst, 2004).
5. Lay or independent or co-opted members imply that they "are not employees or students of the institution or elected members of any local authority, but persons with industrial, commercial or employment experience or the practice of any profession" (Dearlove, 2002, p. 261).
6. It should be noted that in July 2013, the "Scottish Code of Good HE Governance" was issued by the Independent Steering Group appointed by the Scottish Government to be followed HEIs in Scotland. The Scottish Code took effect from August 2013 with its content largely similar to those

contained in the 2009 CUC Governance Guide although it observably places significant emphasis on the need to enhance diversity and in particular, gender diversity within governing boards of HEIs. Similarly, the 2009 CUC Governance Code has been revised and replaced with a new "Higher Education Code of Governance" in December 2014. The governance arrangements contained in the 2014 Code are in the main similar to those contained in the 2009 Code, but some minor differences are discernible including: the concept of "comply or explain", which has been replaced with that of "apply or explain"; clear differences have been made in terms of governance arrangements that are mandatory and those that are voluntary; and the 2014 Code has been significantly shortened in terms of presentation with greater clarity with respect to the meanings and implications of principles, elements and governance arrangements.

7. Although we explicitly draw insights from the general corporate voluntary disclosure literature (e.g. Eng and Mak, 2003; Barako *et al.*, 2006a, b; Cheng and Courtenay, 2006; Broberg *et al.*, 2010; Chau and Gray, 2010; Adelopo, 2011; Allegrini and Greco, 2013), especially in the next section (hypotheses development), we pay specific attention to voluntary disclosure studies that have been conducted within HEIs (e.g. Gray and Haslam, 1990; Dixon *et al.*, 1991; Cutt *et al.*, 1993; Banks *et al.*, 1997; Coy and Pratt, 1998; Coy *et al.*, 1993, 1994, 1997, 2011; Coy and Dixon, 2004; Maingot and Zeghal, 2008), and thus permitting our analysis to be informed by both strands of the voluntary disclosure literature.

8. We focus on 2012 because this was the first financial year following the introduction of the "market" or "quasi-market" in the HE sector primarily in the form full-tuition fees and removal of restrictions on the number of students that can be admitted by UK HEIs, which was driven mainly by significant central government budget cuts (i.e. public sector austerity). We argue that the introduction of market forces and competition directly brings to the core the importance of committing to greater public accountability and transparency in the form of increased disclosure by UK HEIs. Thus, this provides us with a unique opportunity to offer timely evidence on the internal governance-disclosure nexus.

9. For example, the various reports and information contained in the annual accountability returns (i.e. audit committee report, risk management report, financial statements, and HR and employee reports relating to pay, equality and diversity, and health and safety, amongst others) submitted to the UK funding councils can be technically subject to a freedom of information (FoI) request (and so is information held by individual HEIs), but it is reported that the current success rate for such requests is quite low (e.g. refer to Jump, 2014). In fact, in conducting our study, we sent a request to HEFCE for copies of the audit committee annual reports of HEIs to be supplied, but our request was turned down and instead advised to contact individual HEIs for copies of their audit committee annual reports. Although we did not follow our request up with a FoI request, it serves as an anecdotal evidence of the general difficult nature in accessing mandatory and voluntary accountability returns and disclosures relating to UK HEIs.

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Appendix

Theme	Item: Information on or reference to	Range of scores	Total score per theme
Panel A: Public accountability and transparency index (PATI)			
(i) Overview of report (REP)	Auditors' report (AUDR)	0-6	30
	Statement of accounting policies (SOAP)	0-6	
	Directory information (DINFO)	0-6	
	Statement of managerial responsibility (SOMR)	0-6	
	Brief summary (BSUM)	0-6	
(ii) Overview of university (UNI)	Statement of objectives (SOB)	0-6	
	Risks identification, management and disclosures (RISKMD)	0-6	42
	Descriptive report/general operating review (DRGR)		
	Financial review (FINR)	0-6	
	Key facts and figures (KFAF)	0-6	
	Key performance indicators (KPIs)	0-6	
	Prospective information (PINFO)	0-6	
(iii) Financial items (FIN)	Financial performance statement (FPS)	0-6	66
	Statement of cash flows (SOCF)	0-6	
	Statement of cost of services SOCS)	0-6	
	Financial position statement (FINPS)	0-6	
	Budget information (BINFO)	0-6	
	Overhead allocation (OVAL)	0-6	
	Depreciation (DEPN)	0-6	
	Financial ratios (FRAT)	0-6	
	Investments (INVS)	0-6	
	Total value of estates (TVOE)	0-6	
	Commitments and contingencies (CACO)	0-6	
(iv) General services: Input (of students and resources) (GEN)	Student numbers (SNOS)	0-6	48
	Cost per equivalent full-time student (CEFTS)	0-6	
	Revenues (REVS)	0-6	
	Staff (STAFF)	0-6	
	Measures on equity and access information (EGINFO)	0-6	
	Qualification of student intake (QOSI)	0-6	
	Space (SPACE)	0-6	
	Financial aid (FAID)	0-6	
(v) Teaching services: Process (TPRO)	Student: staff ratios (SSR)	0-6	30
	Processes to ensure quality of teaching (PTEQT)	0-6	
	Library service information (LSINFO)	0-6	
	Computer service information (CSINFO)	0-6	
	Fields of study (FSTUDY)	0-6	
(vi) Teaching services: output/outcomes (TOUT)	Graduates (GRADS)	0-6	48
	Destination of students (DOSTDS)	0-6	
	Departmental reviews (DEPTR)	0-6	
	Pass and completion rates (PASSR)	0-6	
	Student satisfaction (SSAT)	0-6	
	Employer satisfaction (ESAT)	0-6	
	UG courses completed/100 EFTS (UGCC)	0-6	
	Average time to complete programme (ATTCP)	0-6	
(vii) Research services (RES)	Graduates pass and completion rates (GRDS)	0-6	30
	Postgraduate students (PGS)	0-6	
	Research income (RINCOME)	0-6	
	Publications (PUBS)	0-6	
	Destination of research graduates (DORSTDS)	0-6	

(*continued*)

Table AI.
Public accountability and transparency index (PATI)

Theme	Item: Information on or reference to	Range of scores	Total score per theme
(viii) Community services (COM)	Local community service (LCS)	0-6	48
	Information on alumni activities, involvement and participation (ALUMNI)	0-6	
	National community service (NCS)	0-6	
	International community service (ICS)	0-6	
	Environmental-related information (ERINFO)	0-6	
	Employee health and safety-related information (EHSINFO)	0-6	
	Equal employment opportunity information (EEOINFO)	0-6	
	Staff training and development information (STDINFO)	0-6	
Total	57 Public accountability and transparency Index (PATI) Items		342

Scoring procedure: PATI
0. No disclosure information
1. Disclosure focussing on only past information
2. Disclosure focussing on past/backward looking and future/forward looking information
3. Disclosure focussing on past, future and bad/negative news information
4. Disclosure focussing on past, future, bad and good/positive news information
5. Disclosure focussing on past, future, bad, good and qualitative/non-monetary information
6. Disclosure focussing on past, future, bad, good, qualitative and quantitative/monetary information

Panel B: Quality of board audit committee (QBACI)

The presence of an audit committee (ACOM)		0-1	14
Composed by at least 3 independent members of the governing board, co-opted members with relevant expertise or interest who are not members of the governing board. (COM)		0-1	
Chaired by an independent member (CHAIR)		0-1	
Disclosure of membership (DOM)		0-1	
Disclosure of meetings attendance record (DOMAR)		0-1	
Disclosure of the committee's remit/terms of reference (DOCR)		0-1	
Review of committee effectiveness and Performance (RCEP)		0-1	
Whether there sufficient internal controls are in place (INTERCON)		0-1	
Arrangement relating to risk governance and disclosure (RISKGD)		0-1	
Whether there is sufficient and well re-sourced internal audit unit (INAUDIT)		0-1	
Statement on going concern status (GCS)		0-1	
Mix of skill and experience – whether at least one member has recent and relevant experience in finance, accounting or auditing. (FINLIT)		0-1	
Frequency of committees meetings – if the committee meets at least 4 times in a year (FCMS)		0-1	
Whether an academic (with or without accounting and finance experience) is present on the committee (NAFA)		0-1	
Total	Quality of board audit committee index (QBACI) Items		14

Scoring procedure: QBACI
Binary/dichotomous: zero for absence; 1 for presence

Table AI.

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