The Role of Auditor Style in Financial Statement Comparability*

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Abstract

We argue that each audit firm has its own standardized audit testing methodology and "working rules" for the day-to-day interpretation/implementation of GAAP accounting standards, both of which affect the outcome of financial reporting process. We use the term "audit style" to characterize these methodologies and in-house rules and to test two hypotheses. First, audit style implies that two companies audited by the same Big 4 auditor (and subject to the same audit style) are more likely to have comparable earnings than two firms audited by two different Big 4 Auditors (and subject to different audit styles). We call this accounting comparability. However, the stylized comparability imposed by auditors on their clients may lead to simple uniformity in which heterogeneous events are treated homogeneously, at the expense of reporting accurately on the firm's economic fundamentals (economic income). This would result in less "economic comparability" of reported earnings. For a large sample of U.S. companies over the period 1987 to 2009, we find evidence consistent with both hypothesis: two firms audited by the same Big 4 auditor have greater accounting comparability (more uniform earnings), but less economic comparability of earnings. Thus, there appear to be costs (reporting less relevant earnings) as well as potential benefits (standardization or uniformity of reported earnings) associated with the audit style.

JEL classification: M41; M42

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1. Introduction

The joint conceptual framework project of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) recently re-asserted that comparability is a fundamental property of financial information that enhances its usefulness (FASB, 2010). Comparability is defined as the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena. Indeed the FASB states that comparability in financial reporting is the primary reason for developing accounting standards (FASB, 1980, par. 112). The centrality of comparability is also embedded in accounting textbooks, particularly in financial statement analysis texts (e.g., Phillips et al., 2006; White et al., 2003).

The primacy of comparability as a qualitative characteristic of accounting makes it important to understand the factors that give rise to this characteristic. The emerging research in regard to the determinants of comparability has focused on the role of accounting standards such as the adoption of IFRS (Lang et al 2010; Barth et al 2011). However, it has however long been recognized that accounting standards on their own do not determine financial reporting outcomes but that economic agents and incentives play a significant role (Ball et al 2003). This motivates our broad research question to examine the role of one important economic agent in the implementation of comparability and the consequences of the uniformity imposed. Specifically, we examine the role that auditors play in the implementation of comparability in the United States.

The concept and the use of the word comparability is used differently throughout the literature. Comparability has two distinct dimensions relevant to this study. The first dimension is the closeness of two firms reported earnings due to the uniformity or consistency with which

rules are applied across firms. We refer to this as "accounting comparability." The second dimension is the notion of "economic comparability" or the closeness with which two firms' accounting functions translate the same economic events or fundamentals to financial statements.

We expect auditors to affect comparability for the following reasons. First, as argued by Kothari et al. (2010), auditors are likely to have detailed "working rules" for the day-to-day interpretation and implementation of specific accounting standards and for compliance with GAAP more generally. This is for reasons of efficiency, quality control, and minimization of the auditor's legal liability exposure. Similarly, auditors develop their own standardized firm-wide audit programs and audit methodologies for the interpretation and implementation of generally accepted auditing standards (GAAS). U.S. auditing standards are much more principles-based than U.S. GAAP, so the need for in-house working rules will be even greater for GAAS than for GAAP. These unique audit firm working rules for GAAP and GAAS give rise to what can be termed an *audit style*, with the consequence that an auditor is more likely to systematically detect (or miss) the same type of accounting errors – including GAAP implementation errors – across its client base.[1] The existence of these in-house rules, developed independently by each auditor, leads to our first hypothesis: two companies audited by the same Big 4 auditor (and thus subject to the same *auditor style*) are more likely to have comparable reported earnings than two companies audited by two different Big 4 auditors and thus subject to different *auditor styles*.[2]

We then turn to an examination of the impact of *audit style* on the similarity with which the accounting systems of two firms capture the economic shocks of each firm. We refer to this as economic comparability, the comparability of economic income. If two firms with the same

[1] Our study is similar in spirit to Bamber et al. (2010), which investigates the effect of CEO style on voluntary corporate disclosures.

[2] Our analysis focuses on Big 4 auditors due to their large clienteles relative to smaller accounting firms. In addition, most of the analyses require firm-pairs in an industry which are audited by the same exact accounting firm, and the sample size is quite small for industry pairs audited by non-Big 4 auditors.

auditor differ in their underlying economic fundamentals, but are forced by the auditor to have the same accounting, then, on average, this will decrease the degree to which the reported earnings of each firm captures their underlying economic shocks. Therefore, while audit style may increase earnings comparability by imposing consistent rules across a firm's clientele, to the extent that there are important differences in underlying economic fundamentals, the resulting earnings may be less comparable in capturing economic reality.[3] This leads to our second hypothesis which predicts that a pair of companies audited by the same Big 4 auditor will have less comparable economic earnings than a pair of companies audited by two different Big 4 auditors.

Our initial tests measure accounting comparability in three ways. Our first and primary approach is to examine the differences in year-specific accruals (total accruals and abnormal accruals) between pairs of firms (in the same industry) using the same Big 4 auditor versus firm-pairs with two different Big 4 auditors. Our second approach follows the CEO style literature of and uses an auditor fixed effects model to examine the commonality of accounting for auditor clienteles (e.g., Bamber et al. 2010; Ge et al. 2011). The third approach measures the degree to which the earnings of a pair of firms in the same industry and audited by the same Big 4 auditor, covary across time (Barth et al 2011; De Franco et al. 2011; Lang et al 2010). We use three approaches because each has its own strengths and limitations. However, taken together the strengths of one method alleviate the concerns associated with the weaknesses of the other methods.

[3] An analogous argument has been made as to why the adoption of a global set of standards set of standards may not be beneficial. For example Lang et al (2010, p.10) state "While adoption of a shared set of accounting standards may increase earnings comovement by imposing a shared set of accounting standards, to the extent that previous accounting differences reflected legitimate differences in underlying economics, the resulting earnings may be less comparable in the sense of consistently capturing economic reality."

The tests are based on pairs of firm-year observations in the same industry over the period 1987 to 2009. Our findings are as follows. Consistent with our first hypothesis, we find that two companies audited by the same Big 4 auditor have more comparable earnings than two firms audited by two different Big 4 auditors. These results are consistent across the three empirical approaches to the measurement of comparability: pairs of firms with the same Big 4 auditor have more similar accruals (and abnormal accruals), auditor fixed effects are a statistically significant determinant of accruals, and have more similar covariation in earnings over time. These results are robust to a set of controls commonly used in the audit literature on client earnings quality, and to a large number of robustness tests. These results are consistent with each Big 4 audit firm having a unique audit style that is reflected in the comparability of audited earnings numbers.

To examine the impact of *audit style* on the comparability of economic income we use the comparability metric developed by De Franco et al. (2011). Their measure of comparability focuses on the relation between earnings and stock returns, and measures the closeness with which two firms' accounting functions translate the same economic events to financial statements. More specifically, this measure focuses on the idea that if firms have a similar set of economic transactions (as reflected in stock returns), then firm *j* should produce similar earnings to firm *i*. Using this metric we find that a pair of companies audited by the same Big 4 auditor have less comparable reporting of economic income in accounting earnings than a pair of companies audited by two different Big 4 auditors. This finding suggests that Big 4 auditors may create an "artificial" comparability by imposing a standardization or uniformity that does not necessarily reflect the underlying economic fundamentals of firms. As Concepts Statement No.

8 states in paragraph QC23: "Comparability is not uniformity. For information to be comparable, like things must look alike and different things must look different."

Our findings make several contributions to the literature. First, we are the first study to hypothesize and test for the role of economic incentives and institutions within a country in the production of comparability. The existing debate and empirical evidence in regard to the production of comparability has almost exclusively focused on the role of standards themselves specifically FASB versus IFRS. We provide evidence that an economic institution - the auditor - is an important factor in the production of financial statement comparability. Consistent with the joint FASB/IASB conceptual framework, our results suggest that uniformity *per se* in standards does not necessarily lead to comparability and that the effects of adopting a uniform set of accounting standards is dependent upon the audit firms that are involved in the interpretation, implementation and enforcement of GAAP. As such, we document a new channel through which auditor characteristics affect the quality of audited financial reports. Second, we contribute to the debate on principles versus rules in the development of accounting standards by regulators. Kothari et al. (2010) argue that regulators should not be concerned with the potential for non-comparability if accounting standards are principle-based, because accountants and auditors who are involved in the day-to-day application of principles will develop detailed working rules which will minimize diversity in practice. Our evidence is consistent with their argument.

Third, we contribute to the literature on audit quality. Our hypotheses and comparability measures are different from the common and long-studied earnings attributes in the audit literature. Our results indicate that auditors impose the qualitative characteristic of comparability on the financial reporting process. Significantly, this implies that Big 4 accounting firms have systematic individual "styles" that are imposed on the financial reports of their clienteles. Our

study and results are therefore related to Bamber et al (2010) who find that individual corporate managers have their own individual style in choice of voluntary corporate financial disclosure and Ge et al. (2011) who find that CFOs have individual style in the choice of accounting practices. We extend this concept of unique styles in the production of financial reports from individuals to organizations. Our finding is analogous to the finance literature that examines mutual funds and which documents that funds have their own unique styles (Barberis and Shleifer (2003)).

Finally, we increase our understanding of the benefits and costs of the auditor's involvement in the production of financial reports. There is a large literature that has examined the benefits of high-quality audits and it is well established that on average they give rise to higher earnings quality and lower earnings management. However, the costs of achieving this are less well understood. To achieve these benefits, audit firms will act in their own-self-interest by developing rules and policies to control staff, to ensure some minimum level of quality is achieved, and to reduce the firm's business risk and litigation exposure. It has long been recognized in the context of the uniformity versus flexibility debate in the context of accounting standards that in treating heterogeneous transactions homogeneously this can compromise the information contained in financial reports (Dye and Sridharan 2008; Dye and Verrecchia, 1995). Thus it is possible that an auditor imposed uniformity on the financial reporting process runs counter to the underlying economic fundamentals of clients, in which case there would be termed *forced* accounting comparability that does not reflect a true economic comparability. Our evidence is consistent with this. However, at this stage we do not know if the downside of auditor-induced accounting comparability (uniformity) outweighs the potential benefits of economic comparability.

The remainder of the study proceeds as follows. Section two develops the study's two hypotheses. The research design is presented in section three, and sample selection and data are summarized in section four. Empirical results and robustness tests are reported in sections five and six. Section seven presents the analysis of economic versus accounting comparability, and section eight concludes the study.

2. Hypothesis development

Two lines of research are relevant to this study: research that has examined financial statement comparability, and research linking auditor charactistics with earnings attributes. While the importance of comparability has long been recognized by standard setters, and there has been substantial discussion about comparability in the academic literature at a conceptual and normative level, there is much less empirical research. Recently, however, empirical papers have emerged both in response to the development of new methodologies to measure comparability, and to the widespread adoption of IFRS. These papers examine if adoption of IFRS improves comparability, or if the consequences of improved financial statement comparability affects decisions by investors. For example, Barth et al. (2011) examine the comparability of non-U.S. firms that adopt IFRS with U.S firms, and find that IFRS adoption by non-U.S. firms enhances financial statement comparability with U.S. firms. Bradshaw et al. (2011) examine the impact of comparability on analysts' forecasts and measure comparability using the commonality of accounting policy choices. Lang et al. (2010) examine changes in cross-country financial statement comparability around mandatory IFRS adoption and document that IFRS adoption increases comparability, measured as cross-country earnings co-movement. Two other papers have examined whether comparability affects the decisions of participants in the capital market. De Franco et al. (2011) examine comparability among U.S firms and measure

comparability using financial statement outputs. They find comparability is positively related to analysts' following and accuracy, and negatively related to analysts' optimism and dispersion in earnings forecasts. DeFond et al. (2011) find that foreign mutual fund ownership increases when mandatory IFRS adoption leads to improved cross-country earnings comparability.

Turning to the audit literature, there is a large body of research that has examined the association of auditor characteristics with attributes of clients' audited earnings. The seminal studies linking auditors and earnings attributes are Becker et al. (1998) and Francis et al. (1999) who document that Big 4 clients have smaller abnormal accruals than do non-Big 4 clients. This stream of research has also examined other earnings attributes including benchmark beating (Burgstahler and Dichev, 1997; Frankel et al., 2002), accruals quality (Dechow and Dichev, 2002; Doyle et al., 2007), and timely loss recognition (Basu, 1997; Krishnan, 2005), among others. Francis (2004; 2011) reviews the empirical audit literature, and some of the auditor characteristics associated with earnings quality, in addition to the Big 4/non-Big 4 dichotomy, are the auditor's industry expertise (Reichelt and Wang, 2010), and engagement-specific factors such as client size (Reynolds and Francis, 2000), auditor tenure (Johnson et al. 2002), auditor-provided nonaudit services (Frankel et al., 2002), and the presence of audit firm alumni in executive positions of clients (Menon and Williams, 2004).

We bring the comparability and audit research streams together to investigate the role of the auditor in comparability. While prior comparability research has examined the role of accounting standards in giving rise to comparability (or the capital market benefits of the global harmonization of standards) we know of no attempts to empirically document the role of economic agents such as auditors on earnings comparability. Barth et al. (2011) recognize that accounting reports are the result of a complex interaction of the features of the financial

reporting system which include accounting standards, their interpretation, enforcement, and litigation, all of which affect comparability. Apart from the accounting standards themselves, the auditor is actively involved in all of these other features of the financial reporting system. The audit research literature in turn has had as its focus the role of the auditor in facilitating the reporting of high-quality earnings, with the primary emphasis on accruals quality and earnings management behavior. We extend this research to investigate the role the auditor plays in the implementation of comparability.

We expect that the unique audit testing methodology and unique in-house working rules for interpreting GAAP of each Big 4 auditor give rise to what we term an *audit style*. It is well-known that each Big 4 accounting firm has its own unique audit methodology and testing procedures. For example, Kinney (1986) classified Big Eight firms into three types of audit technology (unstructured, intermediate and structured). While these audit methods/procedures must comply with generally accepted audit standards (GAAS), the audit standards are themselves rather general in nature and much more principles-based than is U.S. GAAP. This means that each accounting firm needs to devise its own in-house working rules for the efficient and consistent implementation of GAAS across its client base (Cushing and Loebbecke, 1986). Auditors also attempt to differentiate themselves from one another based on their methodologies. For example, in the 1980s there was a dichotomy between auditors that used a quantitative approach versus those that used a qualitative methodology. In the 1990s, KPMG promoted its "business risk audit" as an audit innovation (Bell et al., 1997). These divergent practices are also illustrative of the kinds of technical innovation that Kothari et al. (2010) argue is more likely to occur when standards (in this case auditing standards) are principles-based rather than rule-based.

The Big 4 firms use information technology systems to standardize the implementation of their unique audit methodology and working rules across their staff and client base. Discussion with audit staff practitioners reveals that during the course of the audit they use electronic template working papers based on the audit firm's methodology. Zerni (2011) identifies the following software: KPMG's KWorldTM, PricewaterhouseCoopers' *TeamAssetTM* and *KnowledgeCurveTM*, and Ernst & Young's *KnowledgeWebTM*.[5] Dowling [2009] examined how auditors use support software in the course of conducting an audit.

Therefore the unique audit methodologies which is reinforced by the use information technology systems implies each auditor's methodology will detect (and not detect) systematically different random errors that arise in the production of financial reports from the recording of economic events through to the application of GAAP to those events. The implication is the outcome from the audit methodology for the recorded financial report balances will be systematically different between auditors.

Turning to style effects that arise from GAAP interpretation, it may not be as well-known that each of the Big 4 accounting firms also has its own in-house rules for interpreting and implementing GAAP, just as it has for implementing auditing standards (GAAS). Kothari et al. (2010) develop the general argument that a principles-based approach to GAAP does not eliminate the role of "rules." Instead a more principles-based approach to GAAP will result in economic agents such as auditors developing their own in-house "working rules" for the interpretation and implementation of standards. Kothari et al. (2010, p. 277) express it this way:

"It is not likely to be cost effective for accountants and auditors to work with principles on a day-to-day basis. Authority on interpreting and implementing GAAP in an economy has to be

[5] See Vera-Munoz et al. (2006) and Banker et al. (2002) for a more general discussion of knowledge sharing and knowledge sharing technologies.

delegated to thousands of rank-and-file accountants and auditors (for reasons of efficiency); this is possible only if working rules are formulated out of principles."

Importantly, even though there is more explicit guidance in U.S. GAAP than is the case with the relatively more principles-based international financial reporting standards (IFRS), the Big 4 accounting firms still find it advantageous to develop their own in-house working rules for interpreting and implementing U.S. GAAP. The reason is that U.S. GAAP still requires considerable judgment despite the guidance provided in accounting standards. As a result each Big 4 firm has its own in-house GAAP guide that is used internally to guide auditors in the field.

To illustrate this point, we have identified the following products developed by each Big 4 accounting firm for internal use by audit staff:

Deloitte
Deloitte Technical Library (http://www.deloitte.com/us/techlibrary)
Deloitte Roadmap (http://www.deloitte.com/view/en_US/us/Services/audit-enterprise-risk-services/Financial-Statement-Internal-Control-Audit/Accounting-Standards-Communications/980bef5fe91fb110VgnVCM100000ba42f00aRCRD.htm).

Ernst & Young:
Global Accounting and Auditing Information Tool (GAAIT)
(http://www.ey.com/GL/en/Services/Assurance/Assurance-Key-A-A-Guidance-On-Ernst---Young-Online---Global-Accounting---Auditing-Information-Tool).

KPMG:
Accounting Research Online
(http://www.kpmg.com/Global/en/WhatWeDo/Audit/Pages/Accounting-research-online.aspx).

PricewaterhouseCoopers:
Accounting Guides
(http://www.cfodirect.pwc.com/CFODirectWeb/Controller.jpf?NavCode=MSRA-777JJY)

Each Big 4 firm explicitly states that their product represents a guide for the interpretation and application of GAAP. For example, Ernst & Young describes their product as a "global online resource for accounting and auditing standards and Ernst & Young (EY) interpretative guidance relating to US GAAP, international GAAP, and other GAAP systems." Deloitte says its

Technical Library represents Deloitte's "interpretative guidance" for GAAP, and KPMG says its guide provides "access to regulatory pronouncements and KPMG guidance as it is released" and that the guide "includes many illustrative examples to elaborate or clarify the practical application of standards."

While accounting firms originally developed these materials for internal use by their audit staff, they also provide some of the same information to their clients. In other words, clients are using their auditor's GAAP guidance products for use in preparing financial statements. Deloitte's Technical Library has a subscription price of $2,000, and Ernst & Young's Global Accounting and Auditing Information Tool (GAAIT) has a base price of $750. KPMG's Accounting Research Online is also available by subscription, and PricewaterhouseCooopers provides their accounting guides for subscription through their CFOdirect Network. In addition discussions with practitioners reveals whenever a complex accounting issue arises in the preparation of financial reports the CFO will often seek guidance from the Technical Department of the firm's Big 4 auditor as to how the transaction should be accounted for.

Some support for the application of these in-house rules in practice is provided by some isolated examples. Acito et al. (2009) investigate determinants of materiality judgements by examining financial reporting choice in accounting for operating leases. In Table 4 of their paper they report evidence using an auditor fixed effects model of differences between auditors in client restatement rates used to correct discovered lease accounting errors. This suggests different GAAP interpretations by auditors in the application of the lease accounting that resulted in different rates of client restatements. Blacconiere et al. (2011) examined whether firms make voluntary disclosures that disavow the reliability of mandated fair value informative. Inspection of their descriptive statistics shows that Ernst and Young (E&Y) clients are approximately four

times more likely to disavow than are the clients of other national audit firms, most likely due to E&Y including a disavowal as an illustrative supplemental disclosure in its SFAS 123 implementation guidance. Specifically, E&Y's SFAS 123 implementation guidance (Ernst and Young 1995) included an example of a supplemental disclosure that contained wording identical to that of many subsequent disavowals. E&Y encouraged clients to adopt the disclosure if it would be useful to investors and creditors. Thus both these examples illustrate the application of internal working rules by Big 4 auditors in practice.

Thus the working rules of Big 4 auditors are clearly an important mechanism through which GAAP is operationalized and implemented by both auditors and their clients, even within the United States with its (arguably) more explicit rule-based standards. The upshot is that two companies with the same Big 4 accounting firm as their auditor are more likely to interpret and implement GAAP in the same way, including the role of the auditor in enforcing GAAP and detecting GAAP misapplications for its clientele through the firm's standardized audit methodology. Therefore we expect to observe greater comparability in the financial statements of two companies audited by the same Big 4 accounting firm relative to firm-pairs with two different Big 4 auditors, which leads to our first hypothesis in alternative form:

H1: A pair of companies audited by the same Big 4 auditor will have more comparable earnings than a pair of companies audited by two different Big 4 auditors.

Up to this point, we have implicitly assumed that the comparability imposed by auditors on financial reports is beneficial to earnings quality. However, auditors also have their own self-interests which could lead to what might be termed "forced" accounting comparability and excessive conservatism in order to protect themselves from litigation and SEC investigations (Lys and Watts 1994; Basu 1997). In such instances, accounting comparability might not necessarily lead to the accurate reporting of a firm's underlying economic reality. The question,

then, is whether economic comparability is also achieved, in addition to accounting comparability.

If two firms differ in their underlying economics, but are forced to follow the same accounting because of *audit style*, then, on average, this will lead to a decrease in comparability of economic income.[6] As FASB Concepts Statement 8 makes clear:

"Comparability is not uniformity. For information to be comparable, like things must look alike and different things must look different" (par. QC23).

Therefore, while audit style may increase cross-sectional comparability of reported earnings (and comovement over time) by imposing the same rules across a client portfolio, to the extent that there are important differences in the underlying economic fundamentals, the resulting earnings may be less comparable with respect to capturing economic reality. This leads us to predict that a pair of companies audited by the same Big 4 auditor will have less comparable economic earnings than a pair of companies audited by two different Big 4 auditors. There are caveats and counter-arguments to this prediction. First, it assumes that there is sufficient economic heterogeneity such that the imposition of the same working rules by an auditor will inhibit the reporting of economic comparability. Second, it assumes the auditor will not exercise discretion when the application of rules may result in a material conflict with the economic substance of underlying transactions. While ultimately an empirical question, we predict the following:

H2: A pair of companies audited by the same Big 4 auditor will have less comparable reporting of economic income than a pair of companies audited by two different Big 4 auditors.

3. Research design

[6] An analogous argument has been made as to why the adoption of a global set of standards set of standards may not be beneficial. For example Lang et al (2010, p.10) state "While adoption of a shared set of accounting standards may increase earnings comovement by imposing a shared set of accounting standards, to the extent that previous accounting differences reflected legitimate differences in underlying economics, the resulting earnings may be less comparable in the sense of consistently capturing economic reality."

Prior earnings comparability research has in general used two different empirical approaches: (1) cross-sectional similarities in the levels of contemporaneous measures (Joos and Lang, 1994); and (2) the correlation of earnings (covariation) across time (Barth et al 2011; De Franco et al., 2011).[7] To test H1 we build on this prior research and use three approaches. We use approach (1) as our primary test of H1 because of its relative research design strengths in our setting compared to the second approach. For robustness and to provide a link to the emerging CEO/CFO "style" literature we also use an auditor fixed effects model. For further robustness and to provide a link to our empirical testing of H2, we also use approach (2). We describe the construction of the test variables for the approaches we employ and their advantages and disadvantages in Section 3.1.

3.1 Empirical tests of hypothesis one

3.1.1 Differences in accruals

Our primary approach to testing comparability is to examine the closeness of accruals for pairs of firms in the same industry at a common point in time, conditional on auditor choice. This approach is based on and extends prior comparability research such Joos and Lang (1994) and Land and Lang (2002) that has examined similarities in cross-sectional levels of contemporaneous measures such as return on equity and price multiples (e.g., Joos and Lang, 1994; Land and Lang, 2002). These studies use this approach to investigate cross-country convergence in firm-specific earnings multiples. Our approach is conceptually similar except that we are examining auditors as an institutional factor giving rise to comparability and the convergence of earnings within a single country.

[7] A third approach that is occasionally used is similarity of accounting policy choices (Bradshaw and Miller, 2007; Bradshaw et al., 2011). We do not use this approach both because of limited data availability on accounting method choices.

Our analysis examines accruals as this is the component of earnings that is subject to discretion and is the component through which economic agents such as auditors can most directly affect comparability. The premise is simple: two firms in the same industry are more likely to make the same set of accounting choices and judgments in implementing GAAP if they have the same auditor, and it follows that the accruals structure of these firms will be more similar than that of two firms with different auditors. We operationalize this as follows:

$$Diff\_Total\_Accruals_{ijt} = \text{abs}\,(Total\_Accruals_{it} - Total\_Accruals_{jt}) \quad (1)$$

where $Diff\_Total\_Accruals_{ijt}$ is the absolute value of the difference between signed total accruals for firm-pairs *i* and *j* in the same industry in year *t.* Thus we perform our analysis within-industry, thereby controlling to some degree for economic fundamentals. Total accruals are calculated as the difference between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items (IB - (OANCF - XIDOC)), scaled by beginning of year total assets. We use the same approach to calculate differences in abnormal accruals which we label $Diff\_Abn\_Accruals_{ijt}$. Abnormal accruals are calculated using the Jones (1991) model of discretionary accruals, with control for contemporaneous performance (Kothari et al., 2005). H1 predicts that pairs of firms with the same auditor will have a more similar accrual structure and therefore smaller differences in both total accruals and abnormal accruals.

3.1.2 Earnings covariation

The second measure of accounting comparability is the degree to which earnings for a pair of firms covary over time as used in recent studies by Barth et al. (2011) and De Franco et al. (2011). The specific approach we employ follows De Franco et al. (2011), hereafter DKV, who measure comparability as the degree to which earnings for two firms in the same industry

covary over time.[8] Following DKV we measure the level of covariance as the adjusted R^2 from the following regression:

$$Earnings_{it} = \alpha_{0ij} + \alpha_{1ij} Earnings_{jt} + \varepsilon_{ijt}. \quad (2)$$

where *Earnings* is income before extraordinary items for firm *i* and firm *j*, scaled by average total assets of each firm, and the model in equation (2) is estimated over 16 consecutive quarters for all unique pairs of firms in the same 2-digit SIC industry. We use the correlation of firm *i* and firm *j* in equation (2) to measure comparability and this is operationalized as the adjusted R^2 from the regression, hereafter referred to as *ECOMP_COV*. Higher values of adjusted R^2 indicate greater comparability between the firm-pair earnings.

A potential limitation of the *ECOMP_COV* metric is that it does not explicitly control for economic shocks which are crucial to isolating accounting comparability. Following DKV we address this issue in two ways. First, we estimate equation (2) among firms that are likely to be exposed to similar economic shocks by using industry classification as a proxy for such shocks. We then perform all our analysis within-industry by year, thereby controlling to some degree for economic fundamentals and shocks. Second, we control for cash flow covariation for firm-pairs which is measured analogously to *ECOMP_COV*. Specifically, *CFO_COMP_COV* is created in an identical manner to *ECOMP_COV* except that in equation (2) we replace *Earnings* with *CFO*, which is the ratio of quarterly cash flow from operations to the beginning of period market value.

[8] DKV suggest two approaches for measuring comparability, one based on the covariation in earnings across firms and the second based on the similarity of mapping earnings and stock returns across firms. As recognized by Lang et al. (2010) these two metrics are likely to capture different characteristics of reported earnings. Lang et al. (2010) suggest covariation in earnings captures anything that creates earnings similarity, regardless of whether the underlying economics are indeed similar. In contrast, comparability of mapping earnings into returns measures whether earnings are similarly capturing the underlying economics. Hypothesis H1 is underpinned by the concept of auditors making the same accounting choices for a pair of firms. Therefore for this reason we use the earnings covariation metric of DKV as opposed to the return-based metric. However, to test hypothesis H2 we use the DKV metric based on the similarity of mapping earnings and stock returns across firms.

Using an earnings covariation metric such as *ECOMP_COV* to test hypotheses H1 has two additional limitations. First, the metric uses quarterly earnings and the observable effects of the auditor on comparability will be weaker in quarterly data compared to annual earnings. This is because only the annual earnings are subject to a full scope audit. In contrast, interim earnings numbers for the first three quarters are simply reviewed by the auditor. Under the integrated reporting model, fourth quarter earnings must be equal to annual earnings less the sum of the first three quarters, so the fourth quarter earnings can be also noisy due to the implicit adjustments for prior-quarter estimation errors. While we can expect the auditor to influence the implementation of GAAP over the entire year, we do not expect the influence of "audit style" on earnings comparability to be as strong in quarterly data as it would be in fully audited annual earnings.[9] Second, the *ECOMP_COV* metric requires a lengthy time-series of quarterly data over four years and thus we have to remove from the sample all firm pairs that change auditors. It is also implicitly assumes the auditor has the same in-house working rules (style) over this four-year period.

3.2 Regression models

To examine the relation between accrual differences and earnings comovement we estimate the following OLS regression models:

$$Diff\_Total\_Accruals_{ijt}\ (Diff\_Abn\_Accruals_{ijt}) = \alpha_{0ij} + \alpha_1 Same\_Big4_{jt} + \alpha_2 Controls + \varepsilon_{ijt}. \quad (3)$$

$$ECOMP\_COV_{ijt} = \alpha_{0ij} + \alpha_1 Same\_Big4_{jt} + \alpha_2 CFO\_COMP\_COV + \alpha_3 Controls \quad (4)$$

All tests are based on robust *t*-statistics which control for heteroscedasticity and in which standard errors are clustered at the firm level to control for potential non-independence (Peterson

[9] There is a design trade-off here. While the analysis of annual data would be the most appropriate (in our research context), it is not practical to use annual data given the long time series required for the earnings covariation tests.

2009). Results are robust to clustering by both firm and year, and to alternative clustering by unique firm-pairs.

The regression models in equations (3) and (4) are estimated using a sample of firm-pairs that have the exact same Big 4 auditor versus firm-pairs with two different Big 4 auditors. Note that our data goes back to the era of the Big 8 accounting firms, and each accounting firm is treated as unique for the years in which it exists in the sample data. For convenience, we use the term "Big 4" to refer to all of these auditors. To test H1 we use the indicator variable *Same_Big4* which is coded 1 if the auditor for a pair of firms is the exact same Big 4 firm, and 0 if auditors in a pair of firms are two different Big 4 auditors**.** Therefore the intercept α_0 measures the mean comparability metric for firm-pairs audited by two different Big 4 auditors. In equation (3) we predict a negative coefficient on *Same_Big4* because a lower value of *Diff_Total_Accruals* indicates a smaller difference in accruals and hence greater similarity or comparability of earnings. In contrast, we predict a positive coefficient on *Same_Big4* in equation (4) because a larger value of *ECOMP_COV* indicates greater comparability (covariation) over time.

Lang et al. (2010) point out there is no theoretical or empirical guidance concerning appropriate control variables to include in a regression that explains earnings comparability. Lang et al. (2010) in their earnings comovement regression model include control variables for size and book-to-market on the basis that these variables are widely used to capture many unobservable firm-specific characteristics. We include these variables as control variables but also control for a wide range of other variables identified in the literature that could result in the earnings between two firms being similar due to either economic fundamentals (e.g., volatility of operations) or the propensity to manage earnings (e.g., book-to-market ratio or leverage). The full set of control variables are: size, leverage, market-to-book, cash flow from operations,

losses, standard deviation of sales, standard deviation of cash flows, and sales growth.[10] Due to the absence of theory we make no predictions as to what the signs of the coefficients on the control variables should be. In the regression model in equation (4) we also include the level of accruals as an independent variable to control for the finding from prior audit research that Big 4 clients have smaller abnormal accruals than do non-Big 4 clients (Becker et al. 1998; and Francis et al. 1999). Therefore, the regression model examines whether auditors have an effect on the comparability of earnings that is incremental to their impact on accruals quality. Lastly, we also include industry fixed effects at the 2-digit SIC industry classification as a further control for innate firm characteristics and potential omitted variables. The test variables and control variables are defined in Appendix A.

As our dependent variable is calculated each year *t* for a pair of firms *i* and *j*, the control variables also need to control for yearly characteristics of the firm-pair *i* and *j*. Following prior research that has used pairs of firms, we control for both the *levels* and *differences* in pair characteristics (Francis et al., 2009; De Franco et al., 2011). For the regressions which have $Diff\_Total\_Accruals_{ijt}$ and $Diff\_Abn\_Accruals_{ijt}$ as the dependent variable we control for *levels* by entering the minimum value in each year *t* for the paired control variables for firm *i* and *j*. The *differences* are measured by the absolute value of the yearly difference in the control variable values for firm *i* and firm *j*. For the regressions which have *ECOMP_COV* as the dependent variable we follow the same approach. However, for these regressions the dependent variable is constructed from the correlation of earnings across 16 consecutive quarters for firm-pairs. We therefore estimate the average of each control variable for each firm *i* and each firm *j*

[10] For the regression in equation (4) using *ECOMP_COV* as the dependent variable to control for cash flow fundamentals we have included the variable *CFO_COMP_COV*. In regression (3) using *Diff_Total_Accruals* as the dependent variable, to have an analogous control for cash flow fundamentals to regression (4) we include cash flow from operations

across the corresponding 16 quarters. We then use the minimum value and the differences of these averaged values as the control variables.

4. Sample selection and data

4.1 Sample construction

To select the sample for the empirical tests we begin with all non-missing observations for Compustat firms incorporated in the U.S. with data from 1987 to 2009. We use this period because we require "Cash Flows from Operations" as a control variable and this first became available in 1987. Following De Franco et al. (2011) we retain firms with fiscal year ends in March, June, September and December. We only keep observations where there are at least 20 firms in a given two-digit industry, and delete firms whose name contains "HOLDING", "HOLDINGS", "'ADR", "partnership", "LP", "LLP". We also delete all firms which report negative total assets or total assets less than 10 million. We also delete firm-year observations in a year when a firm switches audit firm. Further, our sample is constrained by the availability of the "Cash Flows from Operations" data item. Finally, we winsorize all continuous variables at 1 percent and 99 percent.

As discussed above, we analyse the relation between auditor choice and comparability of earnings using two alternate metrics: cross-sectional accrual differences and earnings comovement over time. Accordingly, we partition our primary sample, the accruals-difference sample, into a further sub-sample for analysing the earnings comovement sample. Specifically, we keep only those firms from the accruals-difference sample that have data for all variables for 16 consecutive quarters and that did not change auditors during the 16 quarter period. To alleviate any concern in regard to the robustness of the *t* statistics, we use firm-pairs with non-

overlapping 4-year periods to mitigate concerns over non-independence of error terms. Therefore this sub-sample is substantially smaller than the accruals-difference sample.

During sample period there were some audit firm mergers. For all our tests we only compare pairs of firms audited by exactly the same auditor. For example, Price Waterhouse is not treated the same as PricewaterhouseCoopers.[11] This has no effect on the accruals tests which are based on yearly cross-sectional data. However, this issue does result in a reduced sample for the *ECOMP_COV* analysis because this metric requires firm *i* to have exactly the same auditor across a 4 year period. For example, a firm that was audited by Price Waterhouse in 1996 and 1997, and then by PricewaterhouseCoopers in 1998, is dropped from the sample.

4.2 Descriptive statistics

Table 1, Panel A reports descriptive statistics for all variables in the study. The test variable *Same_Big4* is coded 1 for 21.9 percent of the sample. For the accrual-difference metrics, the mean difference in total accruals (abnormal accruals) between firm-pairs is 11.4 (10.6) percent of total assets. This indicates there is sufficient cross-sectional variation in the level of accruals between two firms for an auditor to have an impact. The mean value of *ECOMP_COV* is an adjusted r-square of 11.7 percent, similar to the 11.2 percent reported by De Franco et al. (2011). Panel B reports the correlation between *ECOMP_COV* and the accruals-difference metrics and shows a statistically negative association as would be predicted (larger accrual differences imply lower earnings comparability). This provides some validity for both

[11] Specifically, Touche Ross merged with Deloitte Haskins and Sells on December 4, 1989 to form Deloitte Touche (later renamed Deloitte); Coopers & Lybrand merged with Price Waterhouse on July 1, 1998 to form PricewaterhouseCoopers, and Arthur Young merged with Ernst & Whinney on October 1, 1989 to form Ernst and Young.

measures, although the magnitude of the correlations is low (r = 0.06).[12] There are several reasons why this is the case: (1) accrual differences are measured after removing variation in earnings due to cash flows, while ECOMP_COV includes variation due to cash flows; (2) the accrual metric is a yearly cross-sectional measure while *ECOMP_COV* measures comparability across time; and (3) it is well-documented there is noise in any earnings-attribute metric.

[Insert Table 1 Here]

5. Results for accrual differences

5.1 Primary Results

Table 2 reports the results of estimating the OLS regression model in equation (3) to test H1 using differences in total accruals and differences in abnormal accruals for firm-pairs. In both model estimations the signs of the coefficients on the control variables are mostly as would be expected. *Accruals_Min, Size_Min, CFO_Min* all have negative coefficients. As accruals, firm size, and cash flows increase in magnitude, a pair of firms are more likely to be homogenous and therefore more likely to have similar accruals.

[Insert Table 2 Here]

In the test of H1, the coefficient on *Same_Big4* is negative and statistically significant at $p < .001$ (two-tail) for differences in total accruals and for differences in abnormal accruals. This is consistent with a greater similarity of accruals for a pair of firms audited by the same Big 4 auditor as the result of audit style, and less similarity in accruals for firm-pairs audited by two different Big 4 auditors. In other words, accruals are more similar for firm-pairs in the same industry-year when audited by the exact same Big 4 auditor, which supports H1.

5.2 Robustness tests

[12] De Franco et al. (2011) predict and find a positive association between their comparability measure and other earnings attributes such as earnings smoothness, predictability and accrual quality. While they find a positive statistical association the economic magnitude of the association is relatively low.

We conduct a number of robustness tests for hypothesis H1. We begin with the notion that if a pair of firms has different auditors and then one of the firm's changes auditor to have the same auditor as the other firm then after the switch we should observe a decrease in the difference in accruals between the two firms. This occurs because the two firms are now more likely to have the same accounting due to audit style effects as they are now audited by the same auditor. To test this we simply estimate our regression (3) across a sub-sample of firm-pairs that have switched from having two different auditors to having the same auditors as follows:

$$Diff\_Total\_Accruals_{ijt}\ (Diff\_Abn\_Accruals_{ijt}) = \alpha_{0ij} + \alpha_1 Switch_{jt} + \alpha_2 Controls + \varepsilon_{ijt}. \quad (5)$$

Switch is a dummy variable that takes the value of 1 if a firm in a pair switches from having a different to having the same auditor as the other firm in the pair and 0 otherwise. Alternatively expressed it takes the value of 1 in the year of the switch and in all following years and therefore takes the value of 0 in all years prior to switch. This regression is only estimated across a sub-sample of firm pairs that have switched auditors therefore the dummy variable *Switch* simply compares the difference in accruals between a pair of firms before and after the switch. We predict a negative coefficient if switching to the same auditor decreases the accrual differences between a pair of firms. The *Controls* and dependent variable are the same as previously described. We estimate this regression across alternate period lengths before and after the switch. We beginning by simply comparing the accruals differences one year prior to the switch *t-1* to one year after the switch *t+1*. We then expand this to two years prior to the switch *t-2* to two years after the switch *t+2* and so on through to five years before and after the switch *t-5* to *t+5*.

[Insert Table 3 Here]

The results are reported in Table 3. The results show across all periods examined that as predicted the coefficient on *Switch* is negative and statistically significant at p=.01 or less, except for total accruals in the t-1 to t+1 test (p=.11). These result are consistent with the accrual differences between a pair of firms decreasing after they switch from having different auditors to having the same auditors, and provide strong evidence that auditor style affects clients' accruals.

Our second robustness test is underpinned by the notion that auditors can impose comparability on the accruals component of earnings, but not the cash flow component. Therefore we re-estimate the regression model in equation (3) using firm-pair differences in cash flows from operations as the dependent variable, and expect the auditor test variable to be insignificant in this analysis. The result is reported in Table 4 and shows, as predicted, that the coefficient on *Same_Big4* is not statistically different from zero. This provides additional evidence that audit style affect earnings comparability.

[Insert Table 4 Here]

We have argued that auditors impose comparability through their in-house policies for the implementation of GAAS and GAAP. These policies are more likely to exist for routine or typical transactions, but there is less likely to be in-house policies for non-routine transitory transactions because there is less likely to be a need for uniformity these atypical transactions. To test this assumption we partition our sample into firm-pairs that report profits and which are more likely to be governed by in-house policies, and firm-pairs that report losses which are more likely to include non-routine transitory transactions and therefore are less likely to be affected by audit style (Hayn 1995). Accordingly, we predict a negative coefficient on *Same_Big4* in the profit sample, but make no directional prediction for the loss sample. The results reported in Table 5 show the expected negative and significant coefficient ($p < .001$) for the profit sample,

while for the loss sample the coefficient is negative but not significant at the .10 level. The results in Table 5 are consistent with our expectation that the full sample results are driven by profit-making firms where audit style is more likely to play a role in accounting comparability.

[Insert Table 5 Here]

Our fourth robustness test addresses the concern that the control variables may not effectively control for differences in economic fundamentals, particularly when differences in fundamentals for firm *i* and firm *j* become large. To control for this we remove all firm-pairs from the sample where the difference in sales revenue between firm *i* and firm *j* is greater than 20 percent. In untabulated results, the coefficient on *Same_Big4* is negative and statistically significant at $p < .001$ for differences in total accruals and differences in abnormal accruals.

6. Additional comparability metrics

In this section we test H1 using two additional measures of comparability: auditor fixed effects and earnings covariation over time for pairs of firms in the same industry sector.

6.1 Fixed effects as an alternate approach to testing for comparability of accruals

An alternate approach to test for the effect of audit style on the comparability of accruals is to determine if auditor fixed effects explain the level of accruals reported by each individual firm *i*. Specifically, rather than examining firm-pairs, we use as the dependent variable the level of accruals reported by each individual firm *i* and examine whether auditor fixed effects explain significant cross-sectional variation in accruals using the following OLS regression:

$$Total\_Accruals_{it} \text{ (or } Abn\_Accruals_{it}) = \alpha_{0i} + \gamma + \alpha_2 Controls_{it} \quad (6)$$

where $Total\_Accruals_{it}$ is total accruals of firm *i* in year *t* as previously defined, and γ is individual auditor fixed effects. The controls are the level of each of the control variables size, market-to-book and leverage for each firm *i* and year *t*. We also include industry and individual

firm fixed effects. Thus our estimated individual auditor-specific fixed effects captures the incremental effects of the auditor at multiple firms *after controlling for any firm-specific effects*. We predict that an F-test will reject the null hypothesis that coefficients of the individual auditor fixed effects are the same in the regression model. Note that in order for an individual auditor fixed effect to be significant in the presence of firm-fixed effects, the auditor would need to consistently have an impact on an account balance that are above or below the mean on some dimension across all the firms that the auditor audits. Alternatively expressed the auditor would need to have a style that is common across its client base. We predict that an F-test will reject the null hypothesis that coefficients of the individual auditor fixed effects are the same in the regression model. This approach to testing for audit style is conceptually similar to the stream of research that examines whether economic agents have individual styles. For example Bertrand and Schoar (2003) find that manager fixed effects are significant for a wide range of corporate decisions and interpret this result to be consistent with general differences in "style" across managers.[13]

In untabulated results, the F-statistic is 7.48 for a regression with *Total_Accruals* and 5.99 for a regression with *Abn_Accruals*, in testing the null hypothesis that individual auditor fixed effects have the same coefficients. These F-tests are significant at $p < .001$ so we reject the null hypothesis that each auditor affects accruals in the same manner. This analysis provides additional evidence that audit firms have individual styles in their approach to the interpretation and enforcement GAAP in their clients' financial reports.

[13] Other papers that use fixed effects to examine differences in style across economic agents include Bamber et al. (2010) who find that individual managers appear to have preferred "styles" that are associated with their propensity to issue voluntary corporate financial disclosure, and Ge et al. (2011) who find evidence of CFO style effects on accounting choices.

We extend this approach to testing for auditor fixed effects as an explanatory factor for the reported amounts of individual line items in the financial statements. We focus on reported line items where there is some likelihood of differences in reported amounts due to inherent judgment which is where auditor style effects would be expected. The account balances we examine are; inventory, capitalized leases, and pension expense. Differences between auditors could arise either due to varying audit methodology or varying interpretations of GAAP. First, we examine inventory. It is well-documented in the audit literature that inventory is an asset subject to inherent risk that requires specific audit procedures. Consistent with this a large volume of audit fee literature consistently finds inventory is positively related to audit fees (Hay et al. 2006). According we predict any style differences between auditors in audit methodology are likely to be evident in this account balance. In regard to capitalized leases, Acito et al. (2009) report that beginning in late 2004 through mid-2006 more than 250 U.S firms disclosed that the operating lease accounting methods they had been using violated GAAP and that the violations were similar in nature. This suggests that there may be systematic different interpretations in the application of the rules or the materiality thresholds in the lease accounting standards (SFAS No. 13 and No. 98 Accounting for Leases). We also examine the expected rate of return for pension assets as there is substantial flexibility in deciding the assumptions that affect reported pension expense (Comprix and Muller 2006; Picconi 2006; Ge et al. 2011).

In untabulated results, the F-statistics are 8.21; 5.47; and 2.52 for regressions with Inventory, Lease Capitalization, and Pension Expense in testing the null hypothesis that individual auditor fixed effects have the same coefficients. These F-tests are all significant at $p < .001$ so we reject the null hypothesis that each auditor affects the accounting for inventory, leases and pension expense in the same manner. This analysis provides additional evidence that audit

firms have individual styles in their approach to the interpretation and enforcement GAAP in their clients' financial reports, and reinforces the primary findings in Table 2 and Table 3 concerning the closeness of accruals for firm-years in the same industry-year.

6.2 Earnings covariation

Table 6 reports the results from the estimation of the OLS regression model in equation (4) to test H1 using earnings covariation of firm-pairs (*ECOMP_COV)*. The signs of the coefficients on the control variables are largely as expected. There is a positive coefficient on *CFO_COMP_COV* which means that when the cash flow from operations for two firms is highly correlated then so is their earnings. The negative coefficients on *Size_Diff* and *LossProb_Diff* mean there is less earnings covariation when there is a greater difference in the size of two firms and probability of reporting a loss for each of two firms. Finally, the negative coefficient on *STD_CFO_Min* is consistent with a greater variation in cash flows leading to less earnings comparability. In summary the results on the control variables, where significant, suggest the model of comparability using *ECOMP_COV* is behaving as expected and provides some validity for using it to test our hypotheses.

[Insert Table 6 Here]

In the test of hypothesis H1, the coefficient on *Same_Big4* is positive and statistically significant at p=.067 (two-tail). This is consistent with the earnings of a pair of firms audited by the same Big 4 auditor being more comparable over time, than the earnings of a pair of firms audited by different Big 4 auditors. We do note that the significance level is weaker than in the test of accruals (Tables 2 and 3). As suggested earlier in the paper, the earnings covariation metric s based on quarterly data which is less likely to be influenced by the full effect of audit

style than annual audited earnings. However, despite this, the results in Table 6 are supportive of H1.

In summary, the results from accruals differences, auditor fixed effects, and earnings covariation over time, are all consistent with hypothesis H1, and indicate that audit style affects accounting comparability: firm-pairs in the same industry and with the same Big 4 auditor have more similar accruals and greater earnings covariation over time.

7. Accounting comparability versus economic comparability

This section reports the test of hypothesis H2, and investigates the role of auditors and audit style on the economic comparability of earnings.

7.1 Accounting versus economic comparability

To examine H2, we use the stock return comparability metric from De Franco et al. (2011). In discussing this metric, Lang et al. (2010, p. 1) note that the "… comparability of the mapping of earnings into returns measures whether earnings are capturing the underlying economics." Alternatively expressed, it reflects the similarity with which the accounting systems of two firms capture similar economic shocks. The assumption is that the market correctly prices the firm's underlying economic fundamentals. In contrast, the covariation in earnings metric (*ECOMP_COV)* simply measures the degree to which reported accounting earnings are similar, regardless of the underlying economics of firm-pairs. That is, earnings covariation has no necessary relationship to underlying economic fundamentals, and these two metrics – earnings comparability and returns comparability – are distinctly different constructs. Consistent with this, Lang et al. (2010) find that the mandatory adoption of IFRS has resulted in increased earnings covariation (greater accounting comparability) but at the same time has decreased returns comparability (less economic comparability).

7.2 Empirical approach

To examine the relation between auditor choice and the comparability of economic income we use the metric developed by DKV, which we call *DKV_Acctcomp*. The variable *DKV_Acctcomp* focuses on the relation between earnings and returns, and measures the closeness with which two firms' accounting functions translate the same economic events to financial statements. More specifically, this metric focuses on the idea that if firms have comparable accounting, given a similar set of economic transactions (as reflected in stock returns), firm *j* should produce similar earnings to firm *i*. $DKV\_Acctcomp_{ijt}$ is measured as the absolute value of the difference of the predicted value of a regression of firm *i*'s earnings on firm *i*'s return, using the estimated coefficients for firm *i* and *j* respectively. It is calculated each year for each firm-pair *i* and *j* in the same 2-digit SIC industry. Further details of the construction of this measure are provided in Appendix B and in De Franco et al. (2011). This metric has been computed by Rodrigo Verdi and provided on his web-page, and we use it as our dependent variable.

To examine the comparability of economic income we estimate the following OLS regression model:

$$DKV\_Acctcomp_{ijt} = \alpha_{0ij} + \alpha_1 Same\_Big4_{ijt} + \alpha_2 Controls \quad (7)$$

To test hypothesis H2 we use the indicator variable *Same_Big4* and estimate the regression with a sample of firms-pairs that have a Big 4 auditor. We expect a negative coefficient on *Same_Big4* in equation (7) if, as predicted, audit style imposes an artificial accounting comparability (uniformity) that lowers the economic comparability of reported earnings.

7.3 Empirical results

Table 7 reports the results from the estimation of the OLS regression model in equation (7). The signs of the coefficients on the control variables are largely as expected. The negative coefficients on *Size_Diff* and *LossProb_Diff* means that there is lower similarity in the reporting

of economic income when there is a greater difference in the size of two firms and probability of reporting a loss for each of two firms. Finally, the negative coefficient on *STD_CFO_Min* is consistent with a greater variation in cash flows leading to less comparability in the reporting of underlying economic income. In summary, the results on the control variables, where significant, suggest the model of economic comparability using *DKV_Acctcomp* is behaving as expected and provides some validity for using it to test our prediction.

[Insert Table 7 Here]

In the test of H2, the coefficient on *Same_Big4* is negative and statistically significant (p=.053, two-tail). The closeness with which two firms' accounting functions translate the same economic events to financial statements is less for a pair of firms audited by the same Big 4 auditor than the earnings of a pair of firms audited by different Big 4 auditors. This is consistent with less economic comparability for firm-pairs audited by the same Big 4 auditors, and supports the prediction of H2.

The result in this section is consistent with auditor in-house rules or audit style decreasing the closeness with which two firms' accounting functions translate the same economic fundamentals to financial statements. So there appears to be a trade-off. On the one hand, clients of the same Big 4 auditor have more comparable accounting earnings, and this may have benefits. For example, prior research has documented that higher quality auditing constrains managerial opportunism and earnings management behavior. At the same time, there also appears to be cost in the sense that accounting earnings do not map as well to a firm's underlying economic fundamentals. Thus, the benefits of accounting comparability may come at a price.

7.5 Additional robustness tests and analyses

The concept underpinning hypothesis H2 is that the imposition of homogenous rules or style by auditors on heterogeneous clients decreases the usefulness of reported accounting information for making cross-firm comparisons of underlying economic fundamentals. As a robustness test, we examine the case when auditors do not have rules or an audit style in which case we would not expect to observe this effect. We operationalize this analysis by holding constant the impact of audit style, and examining the impact of differential auditor quality on the accuracy with which reported earnings gives rise to comparability of economic income.

Specifically, we compare the effect of Big 4 auditors on comparability of economic income to that of non-Big 4 auditors. We test for a difference in the comparability of economic income of a pair of firms audited by two *different* Big 4 auditors, and a pair of firms audited by any two non-Big 4 auditors. To test this prediction, we estimate regression (8) with the indicator variable *Different_Big4* for a sample of firm-pairs which either have two different Big 4 auditors, or both firm-pairs have a non-Big 4 auditor. We predict a positive coefficient on *Different_Big4* because higher quality audits should improve the comparability of economic income.

The effect of audit style is not a factor in this analysis because the sample of firm-pairs audited by Big4 auditors are pairs audited by two different Big4 auditors and thus the systematic effect of audit style for each Big 4 firm is randomized away. We predict that higher-quality auditing in the absence of audit style effects will lead to accounting earnings that better reflect the underlying economic fundamentals of firms. Thus we predict increased comparability of economic income for firm-pairs audited by Big 4 auditors than firm-pairs audited by non-Big 4 auditors. There are counter-arguments to this prediction. If the Big 4 group of auditors have systematically different incentives to non-Big 4 auditors, such as excessive conservatism to protect themselves from litigation and SEC investigations, then this may lead them to

systematically preferring the same accounting policy for all clients without regard to economic fundamentals. This would imply that all Big 4 auditors will reduce the comparability of economic income. In summary, while we make an empirical prediction based on how we expect auditor choice to affect economic comparability, there are plausible counter-arguments for the opposite effect, so ultimately it is an empirical question.

Table 8 reports this analysis. The coefficients on the control variables are the same sign and similar magnitude to those previously reported. The coefficient on *Diffent_Big4* is positive and weakly statistically significant at p=.075 (one-tail). One explanation for this weak statistical evidence is a type II error due to the significant difference in economic fundamentals between firms audited by Big 4 and non-Big 4 auditors. To address this we examine a sub-sample of firms that are comparable in size for both auditor groups. To implement this we examine a subsample of firm-pairs for which the size of each firm must be between the smallest firm audited by a Big 4 auditor and the largest firm audited by a non-Big 4 auditor. The results for this reduced sample are reported in Table 8 Panel B and show that the coefficient on *Different_Big4* is positive and statistically significant at p=.051 (two-tail). In untabulated tests, we find a similar result if we compare firm-pairs audited by either the same Big 4 auditor or two different Big 4 auditors, compare to firm-pairs audited by two non-Big 4 auditors.

[Insert Table 8 Here]

In an additional untabulated analysis, we find that firm-pairs audit by any two Big 4 auditors have more comparable accounting earnings than do firm-pairs audited by two non-Big 4 auditors, i.e., more similar accruals and greater earnings covariation. This finding demonstrates that Big 4 audits result in both greater accounting comparability and greater economic comparability, relative to non-Big 4 audits, and thus provides new evidence on differential audit

quality. Overall, then, we find that firms audited by Big 4 auditors have greater comparability (both accounting and economic) than firms with non-Big 4 auditors. However, Table 7 indicates that within the Big 4 clientele, there is less economic comparability as the result of audit style when firm-pairs are audited by the same Big 4 auditor.

8. Conclusion

A single set of uniform accounting standards is often advocated as a means to give rise to comparability of financial statements, and is the rationale behind the FASB-IASB convergence project. A number of papers have examined whether uniform accounting standards per se give rise to earnings with greater comparability between firms, and there is evidence that this is the case (Barth et al. 2011; Lang et al 2010). Other papers such as Ball (2006) suggest that accounting standards by themselves may have only a second-order effect on the resulting accounting data.

In this paper we investigate the role of the auditor as an economic agent within a single country setting in the implementation and enforcement of GAAP, and the resulting comparability of earnings. Specifically, we predict and find that two companies audited by the same Big 4 auditor are more likely to have comparable earnings than two companies audited by two different Big 4 auditors. We argue that this is due to Big 4 auditors having their own *audit style* as the result of in-house rules with respect to the interpretation and implementation of GAAP (accounting standards) and GAAS (auditing standards). We then examine how the comparability imposed by auditors on reported earnings affects economic comparability, or the closeness with which two firms' accounting functions translate the same economic events to financial statements. Here we predict and find that *audit styles* of the Big 4 firms decrease the closeness with which two firms' accounting functions translate the same underlying economic events to

financial statements. Thus audit style appears to increase accounting comparability (uniformity) but at the same time it reduces the economic comparability of earnings.

Our results have a number of implications. First, they provide support for Kothari et al. (2010) who conjecture that detailed, rule-based accounting standards are not required to achieve accounting comparability. That is, when standards are principles-based, economic agents such as auditors will develop their own in-house rules which give rise to comparability in the production of financial statements. Second, the results suggest that, while auditor in-house rules will increase the closeness of earnings numbers between firm-pairs audited by the same Big 4 auditor, these rules will also decrease the similarity with which the accounting systems of two firms capture a given firm's economic shocks. This implication is consistent with findings of Lang et al. (2010) who find that the mandatory adoption of IFRS resulted in increased earnings covariation, but at the same time has decreased the similarity with which the accounting systems of two firms capture a given firm's economic shocks. Therefore, our study and Lang et al. (2010), in two different settings, both find results that provide support for Dye's (2005) analysis that standards in the presence of economic heterogeneity can decrease the extent to which the accounting system of a firm measures its economic shocks.

Finally, we contribute to the audit literature by showing that Big 4 accounting firms affect another earnings attribute that has not previously been investigated, accounting comparability. In particular, Big 4 audited companies have greater accounting comparability, as well as greater economic comparability in the mapping of economic fundamentals to accounting earnings, than do companies with non-Big 4 auditors. It is also the case that each Big 4 auditor has its own "style" which positively affects accounting comparability for those companies audited by the same Big 4 auditor. However, these Big 4 "styles" also appear to create an

artificial comparability or uniformity that reduces the mapping of economic fundamentals to accounting earnings. At this stage, future research is needed to determine if the benefits of accounting comparability (standardization) such as reduced earnings management outweigh the potentially negative consequence of lower economic comparability.

References

Acito, A., Burks, J., Johnson, W. 2009 Materiality Decisions and the Correction of accounting errors. The Accounting review 84 (3): 659-688

Ball, R., 2006. International financial reporting standards: pros and cons for investors. Accounting and Business Research, International Accounting Policy Forum, 36: 5-27.

Ball, R., Kothari, S.P., Robin, A. 2003. Incentives versus standards: properties of accounting income in four east Asian countries. Journal of Accounting and Economics 36: 235-270.

Bamber, L., and J. Jiang, and I. Wang 2010 What's my style? The influence of top managers on voluntary corporate financial disclosure The Accounting Review 85(4): 1131-1162.

Banker, R., Chang, H., Kao, Y. 2002. The impact of information technology investments on public accounting firm productivity. Journal of Information Systems, 16 (2): 209-222.

Barberis, N., Shleifer, A. 2003 Style Investing. Journal of Financial Economics, 68 (2): 161-199.

Barth, M.E., Landsman, W.R., Lang, M., Williams, C. 2011. Are international accounting standards-based and US GAAP-based accounting amounts comparable?' Available on SSRN at http://ssrn.com/abstract=1585404.

Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. Journal of Accounting and Economics 24 (1): 3–37.

Becker, C., DeFond, M., Jiambalvo, J., Subramanyam, K.R. 1998. The effect of audit quality on earnings management. Contemporary Accounting Research 15 (1): 1–24.

Bell, T., Marrs, F., Solomon, I., Thomas, H. 1997. Auditing Organizations Through A Strategic-Systems Lens: The KPMG Business Measurement Process. KPMG: Montvale, NJ.

Bertrand, M and A. Schoar. 2003 Managing with style: The effects of managers on firm policies The Quarterly Journal of Economics 118 (4): 1169-1208.

Blacconiere, W., Frederickson, J., Johnson, M., Lewis. 2011 Are voluntary disclosures that disavow the reliability of mandated fir value information informative or opportunistic? Journal of Accounting and Economics 52 (2-3): 235-251.

Bradshaw, M.T., Miller, G.S., Serafeim, S.J., 2011. Accounting method heterogeneity and analysts' forecasts. Working paper: Boston College, University of Michigan, and Harvard Business School.

Bradshaw, M.T., Miller, G.S. 2007. Will harmonizing accounting standards really harmonise accounting? evidence from non-US firms adopting US GAAP. Journal of Accounting, Auditing and Finance 23 (2): 233-263.

Burgstahler, D., I. Dichev, I. 1997. Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24 (1): 99–126.

Cushing, B., Loebbecke, J. 1986. Comparison of Audit Methodologies of Large Accounting Firms. American Accounting Association: Sarasota, Fla.

Dechow, P., Dichev, I. 2002. The quality of accounting and earnings: The role of accrual estimation errors. The Accounting Review 77 (Supplement): 35–59.

DeFond. M., Hu, X., Hung, M., Li, S. 2011. The impact of mandatory IFRS adoption on foreign mutual fund ownership: the role of comparability. Journal of Accounting and Economics 51 (3): 240-258.

De Franco, G., Kothari, S.P., Verdi, R. 2011. The benefits of financial statement comparability. Journal of Accounting Research 49 (4): 895-931.

Doyle, J., Ge, W., McVay, S. 2007. Accruals quality and internal control over financial reporting. The Accounting Review 82 (5): 1141-1170.

Dowling, C. 2009. Appropriate audit support system use: The influence of auditor, audit team, and firm factors. *The Accounting Review* 84 [3]: 771-810.

Dye, R., Sridharan, S. 2008. A positive theory of flexibility in accounting standards Journal of Accounting and Economics 46(3): 312-333.

Dye, R., R.Verrecchia. 1995 Discretion vs Uniformity: Choices among GAAP The Accounting Review 70(3): 389-415.

Financial Accounting Standards Board (FASB). 2010. Statement of Financial Accounting Concepts No. 9. Financial Accounting Standards Board: Norwalk, CT.

Financial Accounting Standards Board (FASB). 1980. Statement of Financial Accounting Concepts No.2: Qualitative Characteristics of Accounting Information. FASB: Norwalk, CT.

Francis, J. 2004. What do we know about audit quality?" The British Accounting Review 34 (4): 345-368.

Francis, J. 2011. A framework for understanding and researching audit quality. Auditing: A Journal of Practice and Theory 30 (2): 125-152.

Francis, J., Maydew, L.E., Sparks, H.C. 1999. The role of Big 6 auditors in the credible reporting of accruals. Auditing: A Journal of Practice & Theory 18 (2): 17–34.

Frankel, R., Johnson, M., Nelson, K. 2002. The relation between auditors' fees for nonaudit services and earnings management. The Accounting Review 77 (Supplement): 71–105.

Ge, W., Matsumoto, D., Zhang, J. 2011 Do CFOs have style? An empirical investigation of the effect of individual CFOs on accounting practices. Contemporary Accounting Research28 (4): 1141-1170.

Hay, D., W. R. Knechel, and N. Wong. 2006. Audit fees: A meta-analysis of the effect of supply and demand attributes. *Contemporary Accounting Research* 23 [1]: 141-192.

Jones, J. J. 1991. Earnings management during import relief investigations. Journal of Accounting Research 29 (2): 193-228.

Johnson, V., Khurana, I., Reynolds, J.K. 2002. Audit-firm tenure and the quality of financial reports. Contemporary Accounting Research 19 (4): 637-660.

Joos, P., Lang, M. 1994. The effects of accounting diversity: evidence from the European Union. Journal of Accounting Research 32: 141-168.

Kaplan. S., Williams, D., Menon, K. 1990. The effects of audit structure on the audit market. Journal of Accounting and Public Policy 9 (3): 197-216.

Kinney, W. 1986 Audit Technology and preferences for auditing standards Journal of Accounting and Economics: 73-89

Kothari, S., Leone, A., Wasley, C. 2005. Performance matched discretionary accruals. *Journal of Accounting and Economics* 39 (1): 163-197.

Kothari, S.P., Ramanna, K., Skinner, D. 2010. Implications for GAAP from an analysis of positive research in accounting. Journal of Accounting and Economics 50: 246-286.

Krishnan, G. 2005. Did Houston clients of Arthur Andersen recognize publicly available bad news in a timely fashion? Contemporary Accounting Research 22 (1): 165-193.

Land, J., Lang, M. 2002. Empirical evidence on the evolution of international earnings. The Accounting Review 77: 115-133.

Lang, M., Maffett, M., Owens, E. 2010. Earnings comovement and accounting comparability: The effects of mandatory IFRS adoption. Working paper: University of North Carolina.

Leuz, C., Nanda, D., Wysocki, P. 2003. Earnings management and investor protection: an international comparison. Journal of Financial Economics 69: 505-27.

Leuz, C., Wysocki, P. 2008. Economic consequences of financial reporting and disclosure regulation: a review and suggestions for future research. Working paper: available at SSRN: http://ssrn.com/abstract=1105398.

Lys, T., Watts, R. 1994. Lawsuits against auditors. Journal of Accounting Research 32 (Supplement): 65-93.

Menon, K., Williams, D. 2004. Former audit partners and abnormal accruals. The Accounting Review 79 (4): 1095-1118.

Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: comparing approaches. Review of Financial Studies 22 (1): 435–480.

Phillips, F., Libby, R., Libby, P. 2006. Fundamentals of Financial Accounting. McGraw Hill Irwin: New York City, NY.

Reichelt, J. K., Wang, D. 2010. National and office-specific measures of auditor industry expertise and effects on audit quality. Journal of Accounting Research 48 (3): 647–686.

Reynolds, J. K., Francis, J. 2000. Does size matter? The influence of large clients on office-level auditor reporting decisions. Journal of Accounting and Economics 30 (3): 375–400.

Seavey, S. 2011. Industry complexity and the importance of industry leadership versus engagement office size on the quality of audit outcomes. Unpublished PhD Dissertation: University of Missouri-Columbia.

Vera-Munoz, S., Ho, J., Chow, C. 2006. Enhancing knowledge sharing in public accounting firms. Accounting Horizons 20: 133–155.

White, G., Sonhi, A., Fried, D. 2003. The Analysis and Use of Financial Statements, 3rd Ed. John Wiley and Sons: NJ.

Zerni, M. 2011. Audit partner specialization and audit fees: Some evidence from Sweden. Contemporary Accounting Research: (forthcoming).

APPENDIX A

Variable definitions	
Dependent variables	
Difference in signed total accruals (TA_diff)	Equals absolute value of differences between total accruals of firm *i* and total accruals of firm *j* in a pair. Total accruals are calculated as the difference between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items (IB - (OANCF - XIDOC)), scaled by beginning of year total assets. This variable measures how close signed total accruals are for two firms.
Difference in signed abnormal accruals (Abn_accr_diff)	Equals absolute value of differences between abnormal accruals of firm A and abnormal accruals of firm B in a pair. Abnormal accruals are calculated using Jones (1991) model of discretionary accruals as modified by Kothari et al. (2003). This variable measures how close signed abnormal accruals are for two firms.
ECOMP_COV	The within industry earnings comovement between firm *i* and firm *j*, calculated as defined in section 3.1.1
DKV_acctcomp	The within industry accounting comparability metric of DeFranco et al. (2011), calculated as defined in section 7.3
Explanatory variables	
Same_Big4	Coded 1 if both auditors in a pair of firms are exact same Big 4 firm, 0 if auditors in a pair are two different Big 4 auditors
Control variables	
Accruals_min	Minimum value of accruals in a firm-pair. This variable changes depending on the corresponding Y-variable, and can be *minimum total accruals, minimum abnormal accrual.*
Size_Diff	Absolute value of difference in size between firm *I* and firm *j* in a pair. Size equals natural logarithm of total assets.
Size_Min	Minimum value of size between firm *i* and firm *j* in a pair
LEV_Diff	Absolute value of the difference in leverage between firm *i* and firm *j* in a pair, where leverage is a debt to assets ratio of a company.
LEV_Min	Minimum value of leverage between firm *i* and firm *j* in a pair.
MB_Diff	Absolute value of difference in market to book ratio between firm i and firm *j*. Market to book ratio is calculated as market value of equity divided by book value of equity of a company.
MB_Min	Minimum value of market to book ratio between firm *i* and firm *j* in a pair.
CFO_Diff	Absolute value of difference in cash flows from operations scaled by total assets in year *t-1* between firm *i* and firm *j* in a pair.
CFO_Min	Minimum value of scaled cash flows from operations between firm *i* and firm *j* in a pair.

APPENDIX (continued)

Control variables (continued)	
LossProb_Diff	Absolute value of the difference in loss probability between firm *i* and firm *j* in a pair. Loss probability is the proportion of quarters the firm reports a negative quarterly income before extraordinary items in the past 16 quarters.
LossProb_Min	Minimum value of loss probability between firm *i* and firm *j* in a given period.
STD_Sales_Diff	Absolute value of the difference in standard deviation of quarterly sales between firm *i* and firm *j* in a year. Standard deviation of sales is calculated over the preceding 16 quarters.
STD_Sales_Min	Minimum value of standard deviation of quarterly sales between firm *i* and firm *j* in a pair.
STD_CFO_Diff	Absolute value of the difference in standard deviation of quarterly operating cash flows between firm i and firm j in a pair, where standard deviation of cash flows from operations is calculated over the preceding 16 quarters
STD_CFO_Min	Minimum value of the standard deviation of quarterly cash flows from operations between firm *i* and firm *j*.
STD_Sales_Grth_Diff	Absolute value of the difference in standard deviation of quarterly sales growth between firm *i* and firm *j*, where standard deviation of sales growth is calculated over the preceding 16 quarters. Sales growth equals sales in year *t* minus sales in year *t-1* divided by sales in year *t-1*
STD_Sales_Grth_Min	Minimum value of the standard deviation of quarterly sales growth between firm *i* and firm *j* in a pair.
CFO_COMP_COV	The within industry cash flow comovement between firm *i* and firm *j*, calculated as defined in section 3.1.1
STD_Sales_Min	Minimum value of standard deviation of quarterly sales between firm *i* and firm *j* in a pair.
STD_CFO_Diff	Absolute value of the difference in standard deviation of quarterly operating cash flows between firm i and firm j in a pair, where standard deviation of cash flows from operations is calculated over the preceding 16 quarters
STD_CFO_Min	Minimum value of the standard deviation of quarterly cash flows from operations between firm *i* and firm *j*.
STD_Sales_Grth_Diff	Absolute value of the difference in standard deviation of quarterly sales growth between firm *i* and firm *j*, where standard deviation of sales growth is calculated over the preceding 16 quarters. Sales growth equals sales in year *t* minus sales in year *t-1* divided by sales in year *t-1*
STD_Sales_Grth_Min	Minimum value of the standard deviation of quarterly sales growth between firm *i* and firm *j* in a pair.
CFO_COMP_COV	The within industry cash flow comovement between firm *i* and firm *j*, calculated as defined in section 3.1.1

APPENDIX B. Construction of the $CompAcct_{ijt}$ metric in De Franco et al. (2011, 899-900)

For each firm-year De Franco et al. (2011) first estimate the following equation using the 16 previous consecutive quarters of data:

$$Earnings_{it} = \alpha_i + \beta_i\, Return_{it} + \varepsilon_{it} \quad (1a)$$
$$Earnings_{ij} = \alpha_j + \beta_j\, Return_{it} + \varepsilon_{it} \quad (1b)$$

Earnings is the ratio of quarterly net income before extraordinary items to the beginning-of-period market value of equity, and *Return* is the stock price return during the quarter. Under the framework such that $Financial\ Statements_i = f(Economic\ Events_i)$, the $\alpha\alpha_i$ and $\beta\beta_i$ proxy for the accounting function $f(\cdot)$ for firm *i*. Similarly, the accounting function for firm *j* is proxied by the α_j and β_j (estimated using the earnings and return for firm *j*).

The "closeness" of the functions between two firms represents the comparability between the firms. To estimate the distance between functions, i.e., a measure of closeness or comparability, an implication of accounting comparability is invoked: if two firms have experienced the *same* set of economic events, the more comparable the accounting between the firms, the more similar their financial statements. They use firm *i*'s and firm *j*'s estimated accounting functions to predict their earnings, assuming they had the same return (i.e., if they had experienced the same economic events, $Return_{it}$). Specifically, they use the two estimated accounting functions for each firm with the economic events of *a single* firm. They calculate:

$$E(Earnings)_{iit} = \alpha_i + \beta_i\, Return_{it} \quad (2)$$
$$E(Earnings)_{ijt} = \alpha_j + \beta_j Return_{it} \quad (3)$$

$E(Earnings)_{iit}$ is the predicted earnings of firm *i* given firm *i*'s function and firm *i*'s return in period *t*; and, $E(Earnings)_{ijt}$ is the predicted earnings of firm *j* given firm *j*'s function and firm *i*'s return in period *t*. By using firm *i*'s return in both predictions, we explicitly hold the economic events constant.

Accounting comparability between firms *i* and *j* ($CompAcct_{ijt}$) is defined as the negative value of the average absolute difference between the predicted earnings using firm *i*'s and *j*'s functions. Greater values indicate greater accounting comparability.

Table 1. Descriptive Statistics

Panel A. Summary statistics of variables

Variable	Min	90%	Mean	Median	10%	Max	STD
Dependent Variables							
TA_diff	0.000	0.269	0.114	0.077	0.013	0.958	0.113
Abn_accr_diff	0.000	0.249	0.106	0.075	0.013	0.845	0.101
ECOMP_COV	0.000	0.3264	0.117	0.058	0.002	1.000	0.146
*DKV*_Acctcomp	-36.39	-0.216	-2.567	-1.239	-6.747	0	3.30
Test variable							
Same_Big4	0.000	1.000	0.219	0.000	0.000	1.000	0.414
Control variables							
TA_min	-0.641	-0.023	-0.127	-0.097	-0.276	0.340	0.116
Abn_accr_min	-0.455	0.042	-0.050	-0.028	-0.178	0.390	0.098
Size_Diff	0.000	4.175	1.988	1.655	0.301	9.136	1.525
Size_Min	2.412	6.677	4.657	4.434	2.918	11.599	1.455
LEV_Diff	0.000	0.484	0.215	0.160	0.010	1.290	0.212
LEV_Min	0.000	0.289	0.098	0.033	0.000	1.290	0.133
MB_Diff	0.000	4.124	1.677	0.965	0.150	17.341	2.045
MB_Min	-2.436	2.173	1.109	0.900	0.263	17.122	0.991
CFO_Diff	0.000	0.388	0.166	0.113	0.019	1.264	0.167
CFO_Min	-0.795	0.125	-0.036	0.020	-0.294	0.482	0.186
LossProb_Diff	0.000	0.813	0.331	0.250	0.000	1.000	0.296
LossProb_Min	0.000	0.500	0.163	0.063	0.000	1.000	0.243
STD_Sales_Diff	0.000	238.167	91.590	18.339	1.324	2177.370	212.732
STD_Sales_Min	0.072	28.239	13.774	3.876	0.728	2177.490	44.802
STD_CFO_Min	0.051	16.835	8.514	2.866	0.789	1181.920	25.490
STD_CFO_Diff	0.000	137.292	52.285	9.970	0.835	1181.400	119.695
STD_Sales_Grth_Diff	0.000	1.186	0.753	0.114	0.017	2343.400	11.169
STD_Sales_Grth_Min	0.021	0.246	0.160	0.103	0.048	1115.240	1.080

The table reports descriptive statistics for all 2,028,396 firm-pairs in the study for the period 1988-2009. Test variables and control variables are defined in Appendix A.

Table 1 (continued)

Panel B. Pearson correlation coefficients between comparability metrics

		I	II	III	IV	V	VI
I	*DKV_acctcomp*	1.000					
II	*ECOMP_COV*	**0.059**	1.000				
		<.0001					
III	*TA_diff*	**-0.355**	**-0.060**	1.000			
		<.0001	<.0001				
IV	*Abn_accr_diff*	**-0.363**	**-0.056**	**0.880**	1.000		
		<.0001	<.0001	<.0001			
V	*Abs_TA_diff*	**-0.344**	**-0.066**	**0.905**	**0.789**	1.000	
		<.0001	<.0001	<.0001	<.0001		
VI	*Abs_abn_accr_diff*	**-0.326**	**-0.043**	**0.728**	**0.730**	**0.765**	1.000
		<.0001	<.0001	<.0001	<.0001	<.0001	

The table reports correlations between the comparability metrics for firm-pairs in the study for the period 1988 to 2009. Variables are defined in Appendix A.

Panel C. Same_big 4 composition

Variable	N	Min	90%	Mean	Median	10%	Max	STD
Arthur Andersen	2,028,396	0.000	0.000	**0.028**	0.000	0.000	1.000	0.166
Deloitte	2,028,396	0.000	0.000	**0.025**	0.000	0.000	1.000	0.157
PWC	2,028,396	0.000	0.000	**0.047**	0.000	0.000	1.000	0.211
Ernst and Young	2,028,396	0.000	0.000	**0.073**	0.000	0.000	1.000	0.260
KPMG	2,028,396	0.000	0.000	**0.039**	0.000	0.000	1.000	0.192
Coopers and Lybrand	2,028,396	0.000	0.000	**0.008**	0.000	0.000	1.000	0.086
Arthur Young	2,028,396	0.000	0.000	**0.000**	0.000	0.000	1.000	0.003
Touche Ross	2,028,396	0.000	0.000	**0.000**	0.000	0.000	1.000	0.004

Table 2. OLS results for accruals comparability metrics

Two firms select s*ame* big 4 auditor vs. two firms select *different* big 4 auditor

	Y = diff Signed total accruals				Y = diff Signed abnormal accruals			
Variable	**Coef.**	**t-Stat.**	**P-val.**		**Coef.**	**t-Stat.**	**P-val.**	
Intercept	0.078	18.840	0.000	***	0.102	25.250	0.000	***
Same_Big4	**-0.002**	**-5.990**	**0.000**	*******	**-0.001**	**-3.260**	**0.001**	*******
Accruals_Min	-0.725	-246.140	0.000	***	-0.716	-292.840	0.000	***
Size_Diff	-0.004	-20.190	0.000	***	-0.002	-14.290	0.000	***
Size_Min	-0.007	-20.680	0.000	***	-0.004	-13.640	0.000	***
LEV_Diff	-0.001	-0.760	0.447		0.003	2.410	0.016	**
LEV_Min	-0.012	-5.310	0.000	***	-0.003	-1.470	0.141	
MB_Diff	0.001	9.820	0.000	***	0.000	2.890	0.004	***
MB_Min	0.003	7.990	0.000	***	0.000	-0.590	0.555	
CFO_Diff	-0.069	-16.780	0.000	***	-0.038	-12.300	0.000	***
CFO_Min	-0.192	-31.570	0.000	***	-0.193	-39.180	0.000	***
LossProb_Diff	-0.035	-29.020	0.000	***	-0.024	-23.240	0.000	***
LossProb_Min	-0.075	-30.020	0.000	***	-0.030	-15.160	0.000	***
STD_Sales_Diff	0.000	3.840	0.000	***	0.000	2.250	0.025	**
STD_Sales_Min	0.000	0.370	0.710		0.000	-1.840	0.066	*
STD_CFO_Min	0.000	2.950	0.003	***	0.000	4.120	0.000	***
STD_CFO_Diff	0.000	3.160	0.002	***	0.000	3.330	0.001	***
STD_Sales_Grth_Diff	0.000	3.030	0.002	***	0.000	-1.610	0.108	
STD_Sales_Grth_Min	0.000	1.280	0.201		0.000	1.060	0.289	
Industry FE	Yes				Yes			
R^2	0.560				0.542			
N	2,028,638				2,030,838			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression between pairwise financial statement comparability based on differences in accruals between firm *i* and firm *j*. The dependent variables are differences in signed total accruals, ***TA_diff,*** and differences in signed abnormal accruals, ***Abn_accr_diff***. Total accruals are calculated as the difference between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items, all scaled by beginning of year total assets. Abnormal accruals are calculated using Jones (1991) model of abnormal accruals as modified by Kothari et al. (2005). The test variable **Same_Big4** is coded 1 if both auditors in a pair of firms are exact same Big 4 firm, and 0 if auditors in a pair are two different Big 4 auditors. Control variables are defined in Appendix A.

Table 3. Auditor "switches" - comparative table with controls omitted

		Coef.	t-stat	p-val		n	R-sq
		t-1 to t+1					
Y = TA_diff	**Switch**	-0.002	-1.57	0.116		72,147	0.57
Y = Abn_Accr_Diff	**Switch**	-0.005	-5.27	0.000	***	72,147	0.54
		t-2 to t+2					
Y = TA_diff	**Switch**	-0.004	-3.29	0.000	***	62,190	0.55
Y = Abn_Accr_Diff	**Switch**	-0.004	-3.91	0.000	***	62,190	0.54
		t-3 to t+3					
Y = TA_diff	**Switch**	-0.006	-4.56	0.000	***	44,795	0.55
Y = Abn_Accr_Diff	**Switch**	-0.005	-4.51	0.000	***	44,795	0.53
		t-4 to t+4					
Y = TA_diff	**Switch**	-0.003	-2.56	0.011	**	29,232	0.54
Y = Abn_Accr_Diff	**Switch**	-0.004	-3.02	0.003	***	29,232	0.52
		t-5 to t+5					
Y = TA_diff	**Switch**	-0.005	-3.23	0.001	***	21,648	0.55
Y = Abn_Accr_Diff	**Switch**	-0.003	-2.61	0.008	***	21,648	0.53

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression for a sample of firm pairs that have switched from having different to having the same auditor. The test variable **Switch** is coded 1 for the year of and after the switch when both auditors in a pair of firms have the same Big 4 firm, and 0 for the years prior to the switch when auditors in a pair are two different Big 4 auditors. ***Switch*** estimates the change in the difference in accruals between a pair of firms before and after the switch from having different to having the same auditor. The dependent variables are differences in signed total accruals, ***TA_diff,*** and differences in signed abnormal accruals, ***Abn_accr_diff***. Total accruals are calculated as the difference between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items, all scaled by beginning of year total assets. Abnormal accruals are calculated using Jones (1991) model of abnormal accruals as modified by Kothari et al. (2005). Control variables are not reported.

Table 4. Test of cash flow comparability

	Y = diff CFO			
Variable	**Coef.**	**t-Stat.**	**P-val.**	
Intercept	0.129	20.250	0.000	***
Same_Big4	0.001	1.200	0.232	
CFO_min	-0.759	-174.470	0.000	***
Size_Diff	0.004	7.280	0.000	***
Size_Min	0.000	0.110	0.909	
LEV_Diff	-0.008	-4.320	0.000	***
LEV_Min	-0.066	-18.410	0.000	***
MB_Diff	0.010	33.580	0.000	***
MB_Min	0.013	19.210	0.000	***
LossProb_Diff	0.022	11.620	0.000	***
LossProb_Min	-0.181	-49.240	0.000	***
STD_Sales_Diff	0.000	-3.770	0.000	***
STD_Sales_Min	0.000	-2.410	0.016	**
STD_CFO_Min	0.000	3.300	0.001	***
STD_CFO_Diff	0.000	-2.910	0.004	***
STD_Sales_Grth_Diff	0.000	1.480	0.139	
STD_Sales_Grth_Min	-0.002	-1.620	0.106	
Industry FE	Yes			
R^2	0.690			
N	2,028,638			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports the results of an OLS regression where the dependent variable *CFO_diff* is the absolute difference in operating cash flows between two firms. The test variable **Same_Big4** is coded 1 if both auditors in a pair of firms are exact same Big 4 firm, and 0 if auditors in a pair are two different Big 4 auditors. Control variables are defined in Appendix A.

Table 5. Good vs. bad years partitioned by net income

	A: Both firms report negative or zero Net Income				***B: Both firms report positive Net Income***			
Variable	**Coef.**	**t-Stat.**	**P-val.**		**Coef.**	**t-Stat.**	**P-val.**	
Intercept	0.004	0.680	0.500	***	0.074	11.570	0.000	***
Same_Big4	-0.001	-0.840	0.404		**-0.001**	**-3.340**	**0.001**	***
TA_min	-0.745	-205.170	0.000	***	-0.729	-84.870	0.000	***
Size_Diff	0.001	1.700	0.089	*	-0.003	-18.210	0.000	***
Size_Min	-0.001	-0.840	0.403		-0.007	-25.800	0.000	***
LEV_Diff	-0.008	-4.550	0.000	***	-0.009	-5.560	0.000	***
LEV_Min	-0.018	-6.390	0.000	***	-0.030	-12.180	0.000	***
MB_Diff	0.000	-1.260	0.207		0.003	14.150	0.000	***
MB_Min	-0.002	-3.870	0.000	***	0.015	30.470	0.000	**
CFO_Diff	-0.071	-12.730	0.000	***	0.069	13.400	0.000	***
CFO_Min	-0.146	-19.290	0.000	***	-0.539	-48.150	0.000	***
LossProb_Diff	-0.008	-3.840	0.000	***	-0.001	-0.990	0.321	
LossProb_Min	-0.020	-6.450	0.000	***	0.000	0.060	0.954	
STD_Sales_Diff	0.000	2.060	0.040	**	0.000	4.090	0.000	***
STD_Sales_Min	0.000	-2.290	0.022	**	0.000	6.240	0.000	***
STD_CFO_Min	0.000	1.230	0.218		0.000	2.500	0.012	**
STD_CFO_Diff	0.000	1.140	0.255		0.000	0.380	0.708	
STD_Sales_Grth_Diff	0.000	1.070	0.286		0.000	5.620	0.000	***
STD_Sales_Grth_Min	0.000	0.960	0.339		0.000	1.370	0.172	
R^2	0.660				0.560			
Industry FE	Yes				Yes			
N	314,984				840,636			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression between pairwise financial statement comparability based on differences in accruals between firm *i* and firm *j*, in which the sample is partitioned into those firm-pairs which report positive earnings, versus those firm-pairs which do not. The dependent variables is differences in signed total accruals, ***TA_diff***. Total accruals are calculated as the difference between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items, all scaled by beginning of year total assets. The test variable **Same_Big4** is coded 1 if both auditors in a pair of firms are exact same Big 4 firm, and 0 if auditors in a pair are two different Big 4 auditors. Control variables are defined in Appendix A.

Table 6. OLS results for ECOMP_COV comparability metric

Panel A. Two firms select same big 4 auditor vs. two firms select different big 4 auditors

Variable	Coef	*t* stat	P-val	
Intercept	0.126	22.51	0.000	***
Same_Big4	**0.002**	**1.87**	**0.067**	*
Size_Diff	-0.002	-3.29	0.001	**
Size_Min	0.001	1.59	0.113	
LEV_Diff	-0.003	-0.5	0.617	
LEV_Min	0.010	1.11	0.266	
MB_Diff	0.003	1.27	0.204	
MB_Min	0.012	4.87	0.000	***
LossProb_Diff	-0.019	-6.99	0.000	***
LossProb_Min	-0.016	-3.5	0.001	**
STD_Sales_Min	0.380	8.19	0.000	***
STD_Sales_Diff	0.074	3.72	0.000	***
STD_CFO_Min	-0.396	-5.89	0.000	***
STD_CFO_Diff	-0.192	-5.23	0.000	***
STD_Sales_Grth_Diff	-0.031	-4.06	0.000	***
STD_Sales_Grth_Min	0.002	0.1	0.920	
CFO_COMP_COV	0.102	15.29	0.000	***
Industry FE	Yes			
R^2	0.032			
N	129,482			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression in which the dependent variable *ECOMP_COV* is a pairwise measure of financial statement comparability based on earnings comovement between firm *i* and firm *j* across 16 quarters. The test variables are: **Same_Big4** which is coded 1 if both auditors in a pair of firms are exact same Big 4 firm, and 0 if auditors in a pair are two different Big 4 auditors. Control variables are defined in the Appendix A.

Table 7. Comparability of economic income (two firms with *same* big 4 auditor versus two firms with two different big 4 auditors)

Variable	Coef.	*t*-Stat.	P-val.	
Intercept	0.387	2.17	0.030	**
Same_Big4	**-0.037**	**-1.93**	**0.053**	*
Size_Diff	-0.064	-5.17	0.000	***
Size_Min	-0.138	-5.79	0.000	***
LEV_Diff	-1.666	-8.62	0.000	***
LEV_Min	-2.534	-9.64	0.000	***
MB_Diff	0.769	9.5	0.000	***
MB_Min	1.757	16.48	0.000	***
LossProb_Diff	-5.817	-36.69	0.000	***
LossProb_Min	-3.308	-16.63	0.000	***
STD_Sales_Min	-11.667	-6.71	0.000	***
STD_Sales_Diff	-4.127	-3.21	0.001	**
STD_CFO_Min	-17.989	-6.91	0.000	***
STD_CFO_Diff	-9.696	-5.12	0.000	***
STD_Sales_Grth_Diff	1.634	4.13	0.000	***
STD_Sales_Grth_Min	3.389	4.26	0.000	***
Industry FE	Yes			
R^2	0.3575			
N	129,482			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression in which the dependent variable is **DKV_acctcomp**, which measures the degree to which the earnings of firm-pairs in an industry map to stock returns (economic comparability of earnings). The test variable **Same_Big4** is coded 1 if both auditors in a pair of firms are exact same Big 4 firm, and 0 if auditors in a pair are two different Big 4 auditors. Control variables are defined in Appendix A.

Table 8. Two firms select two different big 4 auditors vs. two firms select any non-big 4 auditor

Panel A. Full Sample

Variable	Coeff	t stat	P-Val	
Intercept	-0.550	-1.32	0.1857	
Diff_Big4	0.225	1.46	0.1454	
Size_Diff	-0.056	-4.59	<.0001	***
Size_Min	-0.142	-5.89	<.0001	***
LEV_Diff	-1.741	-9.37	<.0001	***
LEV_Min	-2.718	-10.56	<.0001	***
MB_Diff	0.789	10.11	<.0001	***
MB_Min	1.822	17.89	<.0001	***
LossProb_Diff	-5.738	-38.01	<.0001	***
LossProb_Min	-2.969	-16.26	<.0001	***
STD_Sales_Min	-11.386	-6.95	<.0001	***
STD_Sales_Diff	-4.356	-3.37	0.0008	***
STD_CFO_Min	-19.718	-7.95	<.0001	***
STD_CFO_Diff	-10.164	-5.7	<.0001	***
STD_Sales_Grth_Diff	1.593	4.25	<.0001	***
STD_Sales_Grth_Min	3.551	4.58	<.0001	***
R^2	0.365			
Industry FE	Yes			
N	99860			

Panel B. Sub sample based on client size similarities

Variable	Coeff	t stat	P-Val	
Diff_Big4	**0.312**	**1.95**	**0.0510**	*****
R^2	0.357			
Industry FE	Yes			
N	70805			

***, **, and * denote significance at the 1%, 5% and 10% levels (two-tail), respectively. All p-values are based on robust standard errors clustered at the firm level.

The table reports an OLS regression in which the dependent variable is **DKV_acctcomp**, which measures the degree to which the earnings of firm-pairs in an industry map to stock returns. The test variable **Diff_Big4** is coded 1 if both auditors in a pair of firms are different Big 4 firms, and 0 if auditors in a pair are two non-Big 4 auditors. Control variables are defined in Appendix A.