Big 4 Conservatism Around the World

Richard Chung, Michael Firth, Jeong-Bon Kim, and Lei Pang

Abstract Conservatism is a long-established underlying principle of accounting but its implementation has come under the spotlight in recent years following the spate of well-publicized corporate collapses in the U.S. and elsewhere. Previous studies have shown that the Big 4 audit firms are more conservative than the non-Big 4 *in the U.S.* The current study examines whether the U.S. findings extend to other countries. In doing so, we make use of a relatively new measure of conservatism, namely, the C-score developed by Khan and Watts. We find that the conclusion drawn from U.S. studies, namely that the Big 4 are more conservative, extends to the international setting but only under certain conditions. Specifically, the Big 4 are more conservative in those countries where litigation and reputation risks, broadly defined, are high. This increase in conservatism represents a rational response by the Big 4 auditors to their greater exposure, vis-a-vis the non-Big 4 auditors, to litigation and reputation loss in those countries.

R. Chung (✉)
Department of Accounting, Finance and Economics, Griffith University, Gold Coast, QLD 4222, Australia
e-mail: r.chung@griffith.edu.au

M. Firth
Department of Finance and Insurance, Lingnan University, Tuen Mun, Hong Kong
e-mail: mafirth@Ln.edu.hk

J.-B. Kim
Department of Accountancy, City University of Hong Kong, Kowloon, Hong Kong
e-mail: jeongkim@cityu.edu.hk

L. Pang
Department of Finance and Decision Sciences, Hong Kong Baptist University, Kowloon, Hong Kong
e-mail: lpang@hkbu.edu.hk

1 Introduction

Conservatism is an old-established concept that underlies financial accounting practices and standards in many countries. Broadly defined, conservatism implies that, given a number of ways to calculate profit, a firm will choose to report the lowest profit. Thus, the reported earnings will be at the lower bound and reflect pessimistic rather than optimistic outcomes. For example, accounting principles usually dictate that no credit should be taken for revenue until it has been realized, but losses should be immediately recorded for all known liabilities. This leads to a bias 'that will tend to understate profit and undervalue assets' (Lewis and Pendrill 1996, p. 29). Explicit examples of conservatism include higher provisions for bad debts and higher impairment charges for declines in the value of assets. Conservatism acts as a bulwark against the natural tendency of many managers to report optimistic earnings or to report earnings that help achieve managers' opportunistic objectives.

Recent research studies have investigated conservatism in a variety of settings. Watts (2003a, b) and Givoly et al. (2007) provide a concise review of the U.S. literature: non-U.S. studies include Giner and Rees (2001), Raonic et al. (2004), and Huijgen and Lubberink (2005). The basic research design in most of these studies follows Basu (1997). He defined conservatism in financial statements 'as the more timely recognition in earnings of bad news regarding future cash flows than good news' (Basu 1997, p. 33). Basu proposed the use of positive stock returns as a proxy for good news and negative stock returns as a proxy for bad news. Using U.S. data, he finds a larger contemporaneous association between bad news and earnings, than for good news and earnings. Thus, bad news is incorporated in a firm's earnings much more rapidly than is good news; good news filters through to reported earnings over a number of future years. Two major contributions of Basu's work are, one, to develop a model for assessing conservatism, and, two, to demonstrate empirically that conservatism is a common trait in the U.S.

Subsequent studies have examined conservatism across a number of countries. Ball et al. (2000) find that conservatism is greater in common-law countries (e.g., Anglo-American influence) than in code-law countries. Furthermore, they conclude that regulation, taxation, and litigation explain variations in conservatism among countries with a common law heritage. For example, they report that, within common law countries, British firms have less conservative accounting and they attribute this to lower litigation costs and a lower reliance on public debt. However, Pope and Walker (1999) dispute their conclusions and argue that once differences in reporting practices are acknowledged, U.K. firms recognize bad news faster than U.S. firms do. In a later study, Ball et al. (2003) conclude that accounting standards are not the prime driver of conservatism. They examine the accounting conservatism of four East Asian countries (Hong Kong, Malaysia, Singapore, and Thailand) and find that despite adopting Anglo-American style accounting standards, firms' earnings are less conservative than in many code-law countries. Ball et al. (2003) argue that preparers' incentives for conservative accounting are particularly

important, and in the case of Hong Kong, Malaysia, Singapore, and Thailand, the incentives are weak. Thus, the adoption of Anglo-American standards and a common law heritage (for Hong Kong, Malaysia, and Singapore) do not provide a sufficient condition for conservatism. Law enforcement, along with political, legal, and economic institutions, affect financial reporting incentives and thus the level of conservatism applied to financial statements in different countries (Ball et al. 2008; Bushman and Piotroski 2006; Watts 2006).

The earnings reported in a firm's financial statements are a function of judgments and decisions made by both company managers and the external auditor. Chung et al. (2003) argue that in the U.S., large auditors have incentives to impose more conservative accounting on their audit clients. These incentives relate to avoiding costly litigation. Their empirical tests confirm the prediction that Big 6 clients[1] adopt more conservative accounting, and the results are robust across a variety of conditions.

In this paper, we extend the work of Chung et al. (2003) in two different ways. First, we examine the role of auditors in influencing conservatism in client financial statements across a large number of countries. Cross-country studies are important because of the increasingly global nature of financial markets and the multi-national scope of institutional investors and financial service providers, including auditors. We are interested in discovering whether the differences in attitudes towards conservatism between large and small auditors found in the U.S. is replicated in other countries that have different legal and institutional regimes. For example, does the more conservative stance of Big 4 auditors observed in the U.S. extend to other national jurisdictions? Is there a conservatism culture within an audit firm that transcends national borders? Alternatively, does the legal, political economy, and financial market environment within a country shape views on conservatism such that audit firms' cultures are subdued? Our research will shed light on these questions. Our study contributes to the expanding literature that examines the extent to which legal and institutional factors help explain cross-country differences in accounting, corporate performance, and financial structure (Ball et al. 2000; Bushman et al. 2004; La Porta et al. 1997, 1998, 2000; Leuz et al. 2003).

Second, we make use of a new approach to measure conservatism developed by Khan and Watts (2008, 2009). Instead of using the coefficient on negative stock returns as a measure of conservatism (i.e., the Basu approach), we use the C-score measure advocated by Khan and Watts.[2] The Basu approach has come in for

---

[1] The auditors of listed firms are very concentrated. At various times, the largest eight, six, five, and four auditors have dominated audit markets worldwide. Because of mergers and the demise of one auditor, Arthur Andersen, the Big Eight are now the big Four (Big 4). The Big 4 are Deloitte Touche Tohmatsu (DTT), Ernst and Young (EY), KPMG, and PriceWaterhouseCoopers (PWC). When we review prior studies, we use Big 8, Big 6, Big 5, and Big 4, as appropriate. In our analyses, we use the term Big 4 even though at the beginning of our sample period it was the Big 8. The Big 4 is an internationally well-known term for the four largest audit firms.

[2] The Basu measure of conservatism has previously been used by Chung et al. (2004) in a study of Big 4 firms using data from around the world. They reported that the Big 4 audit firms had a

criticism in recent years (Beaver and Ryan 2005; Dietrich et al. 2007; Givoly et al. 2007; Khan and Watts 2009) and there are increasing doubts about its ability to adequately measure conservatism. Several studies have concluded that the Basu measure of conservatism is unrelated to, or even negatively related to, other measures of conservatism. This issue limits the usefulness of the Basu model in empirical studies. C-score has been used in several recent studies as a measure of conservatism (Dhaliwal et al. 2010; Frankel and Roychowdhury 2009; Kim and Zhang 2011; Louis et al. 2011; Srivastava and Tse 2010; Wittenberg-Moerman 2008).

Using a sample of 108,088 firm-year observations from 36 countries for the period 1991–2007, we investigate whether Big 4 clients use more conservative accounting than non-Big 4 clients. Our results show that whether Big 4 clients adopt more conservative accounting than the clients of the non-Big 4 is conditional on the legal and institutional environment of the country where the client is domiciled. We find that the clients of Big 4 auditors use more conservative accounting than the clients of non-Big 4 auditors *if* they are located in jurisdictions with stronger investor protection. However, when the legal and institutional structures are weak, Big 4 clients are indistinguishable from non-Big 4 clients in terms of adopting conservative accounting. We argue that the observed differences in conservatism across clients are due partly to differential pressure from their Big 4 versus non-Big 4 auditors. Our findings are consistent with Big 4 auditors having flexible views on conservatism, and these views are shaped by the legal and institutional environment they operate in. If there are costs to the auditor for not reporting conservatively these are differentially greater for the Big 4. The higher conservatism of Big 4 auditors represents a rational response to the increased threat of litigation, sanctions, and loss of reputation they face in more litigious and investor-friendly jurisdictions. The premise that Big 4 auditors adopt a single global brand image of being more conservative than non-Big 4 auditors across all countries is not supported by the results.

Our paper contributes to the literature in several ways. First, anecdotal evidence, as well as the promotional materials from the auditors themselves, suggests that Big 4 auditors work hard to create a global brand image of high quality conservative audits but our results imply this image does withstand rigorous international scrutiny. Big 4 auditors are opportunistic in the sense that the level of conservatism they apply to their clients' financial statements depends on the jurisdiction of their clients' businesses. Thus, the Big 4 auditors use conservatism to signal audit quality and distinguish themselves from their non-Big 4 brethren only in those countries where the litigation risk and reputation costs to them are high. This study complements the work of Bushman and Piotroski (2006), who carefully articulate why

---

uniform level of quality across countries, a finding which is opposite to that reported here. This indicates that the correct measurement of conservatism is extremely important. In a later study, Francis and Wang (2008) also use the Basu approach. Francis et al. (2004) use earnings management to examine audit quality differences between Big 4 and other auditors using international data.

there are different levels of conservatism across countries. Our extension examines the role of the Big 4 and non-Big 4 auditors in explaining differences in conservatism across clients and across countries. Second, we demonstrate the use of a conservatism measure, C-score, rather than the traditional Basu approach. C-score has useful properties that make it more suitable as a measure of conservatism than the Basu measure. In particular, the use of C-score allows us to conduct a cross-sectional analysis of the effect of Big 4 conservatism on firm-level accounting conservatism using cross-country data.

The paper proceeds as follows. In the next section, we discuss the concept of conservatism and explain the differences attached to conservatism across countries. Importantly, we articulate the role of auditors in influencing their clients' accounting conservatism and debate whether, and under what conditions, there are differences between Big 4 auditors and non-Big 4 auditors. We then describe the research design and the data used to test our hypotheses. We then discuss the results, and follow it with a summary and conclusion.

2   Factors That Influence Conservatism

Several forces have led to conservatism in financial reporting (Watts 2003a, b; Bushman and Piotroski 2006; LaFond and Watts 2008). The main objective of many of them is to increase the confidence of outside investors and creditors in using financial statements. Confidence in the veracity of financial statements is vital for investors and creditors when deciding whether to invest or extend credit and whether to write contracts based on accounting numbers. Because of information asymmetry between managers and outsiders, investors and creditors may restrict the equity, debt, and credit financing they provide to the company and/or they make the cost of financing more expensive. To mitigate the costs imposed by information asymmetry, managers voluntarily adopt conservative accounting practices, and, recognizing this, investors and creditors become more willing to help finance the company. This view of conservative accounting is widely held. For example, Ball et al. (2000, p. 2) state that conservative accounting 'facilitates monitoring of managers, and of debt and other contracts, and is an important feature of corporate governance.'

The voluntary acts of companies to adopt conservative accounting led regulators and professional accounting bodies to enshrine conservatism into rules, standards, and recommended codes of practice. The aim of the regulations is to help protect the interests of investors and creditors, and thereby improve the functioning of commerce and finance. The profession emphasizes conservatism as it wishes to maintain and improve its reputation for financial probity. Financial scandals and the ensuing litigation have often been the impetus for the adoption of more conservative accounting (Mitchell et al. 1991). In the U.S., Statement of Financial Accounting Concepts No. 2 (SFAC 2) requires the use of conservatism, and this underlies the other standards of the FASB. Conservatism also receives backing from the

standards and promulgations of regulatory agencies and professional bodies in other national jurisdictions.

Another force behind conservative accounting is the threat of litigation that alleges fraudulent financial statements and especially the overstatement of earnings. In the U.S., litigation involving financial statement fraud has been commonplace for many years, and this feature of American corporate life is becoming increasingly prevalent in other countries as well (Likierman 1989; London Economics 2006; Samsonova et al. 2010). The money involved in litigation cases has increased dramatically, and it has the potential to bankrupt the recipients of the lawsuits. To reduce the chances of litigation in the first place, and to provide a defense when litigation does arise, managers voluntarily select conservative accounting methods.

While accounting standards prescribe required practices, these are not all-encompassing and do not cover all aspects of business transactions. Furthermore, accounting standards often permit a choice of methods and estimates. Thus, managers have some latitude in choosing what accounting methods to adopt and some of them select more conservative methods than others choose. Managers may have incentives to increase current reported earnings and this will lead them to use less conservative accounting (Kim and Zhang 2011). Current earnings can be boosted by recognizing future gains early and delaying the recognition of expenses to future periods. Reasons why managers might want to boost current earnings include attempts to increase executive compensation and bonuses that are tied to reported earnings, to avoid violating debt covenants, and to increase the perceived attractiveness of the firm when raising new equity or debt finance.

Managers' choices of accounting methods are constrained by the external auditors. In effect, auditors are the enforcers of accounting standards. In many cases, a company will discuss accounting methods or changes in methods with their auditor before implementation. The external auditor also influences accounting choice at the time of the audit and can insist on changes in method if a clean audit report is to be given. In the U.S., there is documented evidence that large auditors prefer conservative accounting methods (e.g., Chung et al. 2003; Kim et al. 2003), and this may also apply in other national jurisdictions as well. Litigation is a major factor that drives auditors to prefer conservative accounting in the U.S. Simunic and Stein (1996) and Shu (2000) show that litigation risk is a major factor in the supply decisions of audit firms. The litigation factor differentially affects large and small auditors, and it is the large auditors that have the most wealth at risk.[3] Class action lawsuits are more likely to involve large auditors because of their 'deep pockets'. Therefore, large auditors will insist on clients using conservative accounting methods so as to reduce the chances of litigation and so as to provide a defense if litigation does occur. Early evidence from the U.S. showed no instances where auditors were sued for understatement of earnings, while there were many instances of litigations over alleged over-statement of

---

[3] Litigation costs include fines, penalties, and court and lawyers' fees. However, auditors also bear costs relating to sanctions from regulators and professional bodies and from loss of reputation.

earnings (St. Pierre and Anderson 1984). Large auditors are more likely to be able to insist that their listed clients adopt conservative accounting. Because they have many listed clients, large auditors can afford to lose some of them if there is a disagreement on accounting matters. In contrast, small audit firms may be very loath to lose a listed client as this is seen as a very prestigious client to them; in this circumstance, small audit firms may be willing to approve the less conservative accounting choices of listed clients. Chung et al. (2003) provide evidence that Big 8/6 auditors (a proxy for large auditors) are associated with more conservative accounting in the U.S. An alternative explanation for an association between conservative accounting and large auditors is that some companies use conservative accounting and hire a large auditor to signal this policy. In this study, we employ a two stage 'treatment effects' model to control for this simultaneity problem.

A recent strand of research has emerged that examines reasons for differences in corporate governance and performance across countries. Here, studies have found that the legal and institutional environment within a country has an important impact on managerial behavior, ownership structure, and corporate and investment practices (e.g., La Porta et al. 1997, 2000). Strong investor protection laws and the ability to enforce laws and obtain legal remedies have been shown to be vital ingredients of good corporate governance. Strong protection for investors' rights is associated with greater transparency and higher quality disclosures of firm-specific information. In countries with strong minority investor protection, accounting standards are more developed, earnings are more value relevant (Ali and Hwang 2000; Ball et al. 2000; Hung 2001), the extent of earnings management is lower (Leuz et al. 2003), and more firm-specific information is incorporated into stock prices (Kim and Shi 2011; Morck et al. 2000). Bushman and Piotroski (2006) consider in detail the influences that shape conservatism and how these differ across countries. In particular, they examine the influence of the legal regime, securities laws, political economy, and tax policy on conservatism. We extend their study by examining the influence of audit firm type: Big 4 and non-Big 4.

As described earlier, the Big 4 auditors are associated with more conservative accounting in the U.S. and we attribute this to the legal environment where auditors are routinely subject to lawsuits. It follows, therefore, that company managers and auditors may be less conservative in accounting matters in those countries that are characterized as having weak investor protection. The penalties for allowing clients to pursue more aggressive accounting are largely absent in weak legal environments and so auditors may give management more discretion and latitude in reporting income. This can apply to all auditors and so large auditors may become indistinguishable from smaller auditors as regards their stance on conservatism. Based on this view of the world, the operational standards of the Big 4 vary depending on the legal jurisdiction in which they operate. By allowing more aggressive accounting in low investor protection environments, the auditors endear themselves to managements who then have more latitude in preparing the financial statements.

An alternative hypothesis is that a large auditor develops a culture of strong conservatism that pervades its world-wide operations. This is consistent with a

large auditor building a global brand image based on conservatism. Education, training, and inter-country exchange of staff all help to inculcate a uniform approach to conservatism within a multi-national audit firm. Under this alternative hypothesis, we expect that a large auditor will be more conservative than a small auditor in all types of legal and financial market environments. Of course, a Big 4 auditor may pursue a brand name enhancing strategy of conservatism and, at the same time, increase the conservatism premium even more in those countries where litigation risk is high.

3 Research Design

3.1 A Measure of Conservatism

Although the concept of conservatism is well understood, it has proved very difficult to derive a quantitative measure of it that can be used in empirical studies. Basu (1997) constructed a measure of conservatism based on the asymmetric timeliness of earnings, where earnings more rapidly incorporate bad news than good news. While prior research studies have extensively used Basu's news-dependent conservatism measure to address various accounting issues (e.g., Bushman and Piotroski 2006; Roychowdhury and Watts 2007), several researchers have recently noted some problems inherent in the Basu conservatism measure, particularly when research questions are related to firm-level variation in accounting conservatism (e.g., Givoly et al. 2007; Khan and Watts 2008; Penman and Zhang 2002).

Recently, Khan and Watts (2008, 2009) proposed an alternative approach to measure conservatism. While their approach is similar in spirit to Basu, it avoids the problems associated with that model. In particular, their model allows us to measure the extent of firm-level conservatism, which is called C-score, using cross-sectional data. A firm's size, market to book ratio, and leverage are theoretically and empirically linked to conservatism (Khan and Watts 2009; Roychowdhury and Watts 2007; Watts 2003a, b) and these variables are used to estimate a firm's C-score. C-scores vary across firms and over time. Although the model uses just three characteristics of a firm, Khan and Watts (2009), using a variety of validation tests, demonstrate that the resulting C-scores provide robust estimates of conservatism.

The first step in the procedure to calculate C-scores is to run a regression of earnings against stock returns and negative stock returns, and their interactions with firm size, market to book ratio, leverage, and a country-level law enforcement index. Thus:

$$X_{cit} = \beta_1 + \beta_2 D_{cit}$$
$$+ R_{cit}(\mu_1 + \mu_2 SIZE_{cit} + \mu_3 MB_{cit} + \mu_4 LEV_{cit}) \quad (1)$$
$$+ D_{cit} R_{cit}(\lambda_1 + \lambda_2 SIZE_{cit} + \lambda_3 MB_{cit} + \lambda_4 LEV_{cit}) + \varepsilon_{cit}$$

where, for country c, company i, and year t, all variables are as defined below.

X	=	Earnings before extraordinary items deflated by lagged market capitalization;
D	=	A dummy variable coded one (1) if the stock return (R) is negative, and coded zero (0) otherwise;
R	=	Stock return, inclusive of dividends, over the fiscal year;
$SIZE$	=	Log of equity market capitalization (share price times shares outstanding in millions of U.S. dollars);
MB	=	Market to book ratio;
LEV	=	Total liabilities divided by total assets.

In the second, step, we use the coefficients from regression model (1) to measure firm-specific conservatism, denoted by *C-score*. Specifically:

$$\text{C-score}_{cit} \equiv \hat{\lambda}_1 + \hat{\lambda}_2 SIZE_{cit} + \hat{\lambda}_3 MB_{cit} + \hat{\lambda}_4 LEV_{cit} \quad (2)$$

Since C-score is not normally distributed, we convert it to a decile ranking (*Cdec*).

3.2 Self-selection Issue

To test whether Big 4 auditors are more conservative than non-Big 4 auditors across different legal environments we use cross-sectional regressions of C-score decile rankings on auditor-type (and control variables). However, we recognize that managers not only make accounting choices but also select the auditor. To the extent that companies with conservative accounting practices are more likely to appoint Big 4 auditors, the results of single-equation regressions may suffer from a self-selection bias. To address this concern, we estimate a two-stage treatment effects model (Greene 1997; Hogan 1997; Kim et al. 2003; Maddala 1983).

In the first stage, we estimate a multivariate probit model, where the dependent variable, *Pr(B4)* is the probability that managers select a Big 4 auditor. The model is based on Choi and Wong (2007). This model has been used in several studies of auditor choice (e.g., Choi et al. 2008; Gul et al. 2010). The model is:

$$Pr(B4)_{cit} = \delta_0 + \delta_1 LNTA_{cit} + \delta_2 CAPINT_{cit} + \delta_3 INVREC_{cit} + \delta_4 LEV_{cit}$$
$$+ \delta_5 LOSS_{cit} + \delta_6 CROSS_{cit} + \delta_7 ENF_{cit} + \delta_8 FDI_{ct} + \delta_9 STK_{ct} + \delta_{10} GDP_{ct} + \varepsilon_{cit} \quad (3)$$

where, for country c, firm i in year t, the variables are as defined below:

Pr(B4)	=	Ex ante probability that a company appoints one of the Big 4 auditors, which is ex post coded one (1) for a Big 8/6/5/4 client, and zero (0) otherwise: To aid exposition, we use the term "Big 4" for the Big 8, Big 6, Big 5, and Big 4.
LNTA	=	Log of total assets (in millions of U.S. dollars);
CAPINT	=	Fixed assets divided by total assets;
INVREC	=	Inventory and receivables divided by total assets;
LEV	=	Total liabilities divided by total assets;
LOSS	=	A dummy variable coded one (1) if the firm reports a loss in the prior year, and zero (0) otherwise;
CROSS	=	A dummy variable coded one (1) if a firm has a listing on more than one market, and zero (0) otherwise;
ENF	=	A law enforcement variable for the country where the company is located. It is equal to 0.5* (rule of law index) + antidirectors rights. The variable is taken from Choi and Wong (2007), who use data from La Porta et al. (1997). We update the antidirectors rights index by using the anti-self-dealing index from Djankov et al. (2008);
FDI	=	Net foreign direct investment (scaled by total GDP) for the country in each sample year;
STK	=	The total market capitalization scaled by total GDP for the country in each year;
GDP	=	Gross domestic product per capita (in thousands of U.S. dollars) for the country in each year;
ε	=	Unspecified random factors.

Our choice of independent variables draws on Choi and Wong (2007). *LNTA* and *CAPINT* represent the scope and complexity of an audit and a large client with complex operations may believe that a Big 4 auditor has greater resources and superior skills necessary for the audit. The valuation of short-term assets, *INVREC*, involves some management judgment and this might have an impact on the selection of the auditor. *LEV* and *LOSS* are associated with a client's financial health and this may have an impact on auditor choice. Companies that are listed on more than one national exchange (*CROSS* = 1) may choose a Big 4 auditor as they will have more experience and a greater presence in many countries. Lang et al. (2003) find that non-U.S. firms that cross-list in the U.S. have higher quality accounting reports. In more advanced legal enforcement regimes (*ENF* = 1), clients may seek to hire a Big 4 auditor to give them assurance that financial statements are credible and will not be a source for lawsuits. *FDI*, *STK*, and *GDP* are added as control variables.

In the second stage, we estimate the following regression that links our measure of accounting conservatism to our test variables, control variables, and the inverse Mills ratio, denoted by *LAMBDA*, which is computed from the first stage probit regression.

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} \\ + \alpha_6 CROSS_{cit} + \alpha_7 LAMBDA_{cit} + \varepsilon_{cit} \tag{4}$$

where, for country *c*, company *i*, and year *t* (or *t-1*), *Cdec* represents our measure of conservatism, estimated from the pooled regression in Eq. 2. *SIZE, M/B, LEV,* and *CROSS* are as defined earlier; and other variables are defined below:

Big4	=	A dummy variable coded one (1) if the auditor is a member of the Big 8/6/5/4, and coded zero (0) otherwise;
LAMBDA	=	The inverse Mills ratio generated from the self selection model in Eq. 3 using the pooled OLS procedure.

We include three important determinants of conservatism, *SIZE, M/B,* and *LEV,* in a *lagged* form (in year t − 1) as control variables to minimize possible mechanical correlations between our measures of conservatism in year t and these three determinants in year t. As indicated in Eq. 2, C-score is measured as a function of firm size, market-to-book ratio, and leverage in the current year t. As such, *SIZE, M/B,* and *LEV* in current year t could be mechanically correlated with our measures of C-score. We therefore use lagged terms. A cross-listing on a foreign stock market might affect conservatism and so we control for this using the dummy variable *CROSS.*

3.3 Legal and Institutional Factors That Influence Conservatism

The main experimental variable of interest is *Big4*, which captures the difference in conservatism between Big 4 and non-Big 4 client companies. If the coefficient on *B4* is significantly positive, this indicates that Big 4 client companies are more conservative than non-Big 4 client companies. To see if the Big 4 conservatism effect is conditional on the legal and institutional environment of the country where the client is domiciled, we partition countries by whether they are characterized as having strong investor protection rights and strong institutional structures or whether they are characterized as having weak investor protection rights and weak institutional oversight. We use a variety of indices to measure the legal and institutional factors of a country because there is no single universally accepted indicator of country-level legal and institutional quality. All these indices have been used in prior research. We do not combine the indices into a single score as there is no obvious way to weight the individual factors. Instead, we examine whether the results are robust to the choice of legal or institutional environment index.

We group country-specific legal and institutional factors into five types: auditor litigation risk, legal institutions, securities law, political economy, and financial market factors. The specific indices and their sources are listed in Appendix 1. Auditor litigation risk is explicitly proxied by the Wingate (1997) litigation index, ease of being sued, and the severity of sanctions, denoted by *Litigate, Sue,* and *Sanction*, respectively. The Wingate litigation index captures the litigiousness of doing business as an auditor in a country and is based on assessments made by an international insurance underwriter who specialized in providing indemnity insurance for auditors (Wingate 1997). A high score is given for countries where the insurance cost is high. Previous studies have used the Wingate litigation index as a proxy for country-level litigation risk (e.g., Choi and Wong 2007; Choi et al. 2008).

The other two auditor litigation risk variables reflect the ease of suing or sanctioning the auditor with a high score given to countries where it is very easy to sue and where sanctions are easily imposed.

A country's legal system is often described as being either common law or code law. Common law emphasizes the use of case law and judicial precedent in interpreting laws whereas code law emphasizes adherence to the legal statutes. Ball et al. (2000) and Bushman and Piotroski (2006) argue that common law countries may be more inclined toward conservative accounting. Thus, we distinguish between common law and code law countries. Other legal/judicial regime indices relate to the efficiency of the judiciary, the quality of legal enforcement, liability standards, public enforcement of laws, disclosure requirements, and laws related to enhancing shareholders' rights in dealing with directors (Anti-self dealing). In all cases, a high score indicates a more efficient legal system where plaintiffs can more easily take legal actions, including suing the auditor. Greater disclosure will facilitate plaintiffs' actions against the auditor. The political economy factor is measured by how easy it is for the government to expropriate assets (risk of expropriation), state owned enterprises' share of the national economy, and how high the tax burden is. Bushman and Piotroski (2006) include these variables in their study of conservatism.

Some countries have higher stock price synchronicity than other countries (Morck et al. 2000), which implies that stock prices in these countries co-move more with common (market and/or industry-wide) factors than with firm-specific factors. In contrast, in countries with low synchronicity, firm-specific information is very important in determining stock prices. Here, a firm's financial statements assume more importance for investors. Auditors should therefore have a bigger role to play in countries with low synchronicity. By extension, auditors may face greater scrutiny in these countries.

When the proportion of shares held by minority shareholders is high (i.e., the score for "ownership concentration" is low), investors place greater reliance on a firm's financial statements and the external audit. Litigation pressure on the auditor will therefore be higher when firms have a widely-held share capital. Furthermore, Big 4 auditors may be more conservative in dealing with clients in countries with diffuse ownership patterns. Countries with a lot of insider trading might have a lesser need for high quality financial statement information as shareholders base their investment decisions on the actions of the insiders. In contrast, countries with better regulated insider trading have a greater need for high quality financial statements and the Big 4 have incentives to be more conservative. The extent to which stock markets make it easy for new firms to make IPOs may also have an impact on conservatism. IPO companies have biases towards optimistic financial reporting as they want to maximize their values for listing purposes. In heavily regulated markets (i.e., where there are more barriers to making an IPO or SEO) there will be more penalties against auditors if the new IPOs and SEOs fail to live up to expectations. We therefore expect the Big4 auditors will be more conservative in such countries.

The scores for the legal and institutional factors for each of our 36 countries are shown in Appendix 2. A few countries have no scores for auditor litigation risk (Litigate), stock price comovement or synchronicity (VWR^2), insider trading (Insider), and access to equity. This is because the countries were not covered by the indexes we use. We categorize each country that has a score into those with an above median score (High) and those with a below median score (Low). Appendix 3 shows the High and Low scores for each country along each legal and institutional dimension. In the case of risk of expropriation, state-operated business, tax burden, insider trading, and access to capital, we reverse the scoring so that a low score in Appendix 2 receives a High score in Appendix 3. This coding means that countries with a high risk of expropriation, high state involvement in business, high taxes, high insider trading, and high access to capital are coded High in Appendix 3. Bushman and Piotroski (2006) use this same approach. In the case of severity of auditor sanction (Sanction), there are many ties. We therefore classify scores of 0 and 0.5 as Low and a score of 1 as High (0, 0.5, and 1 are the only scores for sanction). As an example of the coding of High and Low, India has a score of 0.66 for liability standards (Liab Std) in Appendix 2 and this is above the median for the 36 countries. India is therefore classified as having a high score for Liab Std (see Appendix 3).

3.4 Data

The sample consists of 108,504 firm-year observations and 14,864 firms from 36 countries around the world for the period 1992–2007. In some of our tests the sample size is less than 108,504 observations because we do not have scores for some legal and institutional factors for some countries. We obtain global financial data from the *Worldscope* database. Information on institutional or legal environment are obtained from Wingate (1997), La Porta et al. (1997, 1998), La Porta et al. (2006); Djankov et al. (2008), Jin and Myers (2006), Hartland-Peel (1996), and Schwab et al. (1999). GDP per capita, market capitalization scaled by GDP (STK), and net foreign investment scaled by GDP (FDI) are extracted from the *International Financial Statistics* published by the World Bank. To be included in the sample, a firm must have the necessary information on their stock return, auditors, assets and lagged financial data. We exclude financial firms (SIC code 6000–6999). We require that the total assets and book value of equity for each firm be greater than zero. We delete firms with missing data on market capitalization (*SIZE*), total assets (*LNTA*), fixed assets (*CAPINT*), market-to-book ratio (*MB*), leverage (*LEV*), inventory and receivables (*INVREC*), earnings (*X*) and stock returns (*R*). We require at least 100 firm-year observations within a country. All continuous variables used in the regression analyses are deleted if their values are below the 1 % and above the 99 % cutoffs to mitigate potential effects of outliers on our results. Appendix 4 defines the variables.

Table 1 Summary statistics

Country	X	R	SIZE	MB	LEV	LNTA	CAPINT	INVREC	LOSS	CROSS	BIG4	C-score	Cdec	N. observations
Argentina	0.160	0.111	4.955	1.130	0.271	5.786	0.559	0.289	0.274	0.202	0.769	0.023	0.401	416
Australia	0.001	0.264	4.052	2.629	0.168	3.977	0.445	0.247	0.459	0.142	0.659	0.154	0.674	5,835
Austria	0.137	0.093	4.937	1.785	0.264	5.747	0.379	0.400	0.194	0.185	0.601	0.050	0.463	702
Belgium	0.127	0.103	5.472	2.086	0.242	5.968	0.325	0.417	0.189	0.066	0.666	0.042	0.452	850
Brazil	0.001	0.382	4.989	1.302	0.285	6.173	0.631	0.345	0.313	0.269	0.688	0.023	0.398	1,856
Canada	0.055	0.206	5.219	2.412	0.219	5.298	0.557	0.253	0.403	0.000	0.828	0.073	0.508	6,345
Chile	0.129	0.138	5.677	1.758	0.232	5.954	0.596	0.265	0.102	0.168	0.949	0.024	0.395	922
Colombia	0.244	0.177	5.183	0.886	0.129	6.142	0.567	0.195	0.171	0.000	0.842	0.050	0.467	158
Denmark	0.141	0.141	4.655	1.925	0.266	5.138	0.385	0.447	0.187	0.026	0.772	0.068	0.518	1,303
Egypt	0.238	0.357	5.862	2.676	0.232	5.971	0.574	0.289	0.089	0.000	0.580	0.048	0.462	112
Finland	0.145	0.176	5.141	2.011	0.261	5.543	0.353	0.388	0.163	0.057	0.862	0.049	0.472	1,122
France	0.111	0.117	5.022	2.111	0.226	5.643	0.223	0.496	0.239	0.060	0.414	0.070	0.522	5,344
Germany	0.093	0.081	5.143	2.390	0.196	5.692	0.308	0.437	0.254	0.064	0.637	0.084	0.551	5,132
Greece	0.108	0.198	4.705	2.406	0.253	5.095	0.389	0.527	0.244	0.016	0.288	0.087	0.553	1,351
Hong Kong	0.070	0.231	4.378	1.729	0.187	4.948	0.325	0.339	0.298	0.153	0.703	0.100	0.591	3,764
India	0.288	0.258	4.302	2.339	0.299	4.930	0.471	0.456	0.141	0.021	0.125	0.089	0.558	3,541
Indonesia	0.216	0.230	3.607	1.457	0.367	4.598	0.471	0.372	0.279	0.013	0.519	0.068	0.527	1,677
Ireland	0.087	0.184	5.030	2.640	0.225	5.172	0.396	0.305	0.339	0.247	0.844	0.089	0.544	454
Israel	0.079	0.144	5.474	2.116	0.243	5.824	0.298	0.309	0.344	0.163	0.915	0.043	0.449	553
Italy	0.132	0.090	5.808	1.828	0.256	6.534	0.312	0.429	0.258	0.090	0.904	0.012	0.366	1,697
Japan	0.073	0.028	5.559	1.556	0.253	6.331	0.317	0.379	0.206	0.038	0.709	0.015	0.373	27,669
South Korea	0.308	0.262	4.613	1.063	0.300	5.870	0.406	0.362	0.261	0.010	0.614	0.028	0.414	4,579
Malaysia	0.075	0.066	4.010	1.354	0.241	4.698	0.450	0.368	0.279	0.018	0.683	0.087	0.575	4,773
Mexico	0.205	0.126	6.154	1.528	0.257	6.856	0.611	0.276	0.240	0.475	0.832	−0.016	0.286	768
New Zealand	0.130	0.147	5.198	2.111	0.257	5.331	0.538	0.308	0.123	0.084	0.929	0.051	0.469	521
Norway	0.118	0.192	5.191	2.243	0.305	5.587	0.428	0.311	0.293	0.104	0.843	0.040	0.433	1,063
Peru	0.239	0.359	4.389	2.370	0.211	4.897	0.506	0.334	0.157	0.145	0.797	0.115	0.574	344
Portugal	0.132	0.111	4.921	1.684	0.318	5.821	0.439	0.374	0.227	0.055	0.529	0.029	0.414	493

Singapore	0.084	0.170	4.273	1.572	0.205	4.774	0.387	0.374	0.237	0.048	0.799	0.094	0.592	2,864
South Africa	0.217	0.203	5.105	2.133	0.145	5.448	0.371	0.472	0.148	0.232	0.789	0.093	0.584	1,760
Spain	0.141	0.172	6.040	2.175	0.231	6.496	0.446	0.407	0.109	0.051	0.837	0.021	0.398	1,224
Sri Lanka	0.316	0.134	3.413	1.240	0.255	4.343	0.551	0.332	0.129	0.000	0.903	0.107	0.643	124
Sweden	0.095	0.161	5.389	2.430	0.198	5.550	0.283	0.420	0.242	0.080	0.892	0.073	0.523	1,724
Thailand	0.170	0.139	3.632	1.281	0.317	4.469	0.475	0.335	0.236	0.043	0.624	0.077	0.547	2,510
Turkey	0.227	0.281	4.790	2.296	0.197	5.024	0.505	0.576	0.246	0.018	0.566	0.097	0.595	1,123
United Kingdom	0.064	0.091	4.683	2.619	0.178	4.859	0.354	0.402	0.301	0.088	0.684	0.120	0.629	13,831
Mean	0.143	0.176	4.916	1.924	0.241	5.458	0.434	0.368	0.233	0.095	0.711	0.063	0.498	

This table reports summary statistics for test and control variables across countries. To be included in the sample, a firm must have stock returns, auditors, assets and other financial data in the *Worldscope* database for the period 1992–2007 and have lagged financial data as well. Financial firms are omitted (SIC 6000–6999). All variables are defined in Appendix 4. Reported numbers, except in the last column and the last row represent mean statistics across firms in each country. The last row reports the grand mean across all countries

Table 2 Pearson correlation matrix. All variables are defined in Appendix 4. p-values are reported below the correlation coefficient

	X	R	SIZE	MB	LEV	INTA	NFA	INVREC	CROSS	BIG4	C-score	Cdec
X	1.000											
R	0.226	1.000										
	0.00											
SIZE	0.071	0.127	1.000									
	0.00	0.00										
MB	−0.088	0.225	0.230	1.000								
	0.00	0.00	0.00									
LEV	0.066	−0.077	0.007	−0.057	1.000							
	0.00	0.00	0.02	0.00								
LNTA	0.149	−0.015	0.874	−0.059	0.238	1.000						
	0.00	0.00	0.00	0.00	0.00							
CAPINT	0.071	0.075	0.072	−0.049	0.188	0.091	1.000					
	0.00	0.00	0.00	0.00	0.00	0.00						
INVREC	0.143	0.028	−0.104	0.027	−0.035	−0.064	−0.298	1.000				
	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
CROSS	−0.019	0.004	0.280	0.041	0.028	0.261	0.056	−0.098	1.000			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
BIG4	0.012	0.010	0.321	0.027	−0.025	0.294	0.044	−0.085	0.111	1.000		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
C-score	−0.140	0.090	−0.579	0.501	−0.533	−0.786	−0.175	0.110	−0.190	−0.203	1.000	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cdec	−0.126	0.070	−0.638	0.282	−0.575	−0.826	−0.181	0.140	−0.199	−0.211	0.923	1.000
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Table 1 reports the country-level mean values of the financial variables. The overall mean stock return is 0.176 and the overall mean earnings to market value ratio is 0.143. The average leverage is 24 % and about 9.5 % of observations have cross-listings. The Big 4 penetration across the 36 countries is 71 %, and ranges from 94 % in Chile to 12 % in India. Table 2 shows the correlation matrix.

4 Results

4.1 C-scores

Table 3 shows the estimated results of the conservatism model. The results for our multi-country sample are similar to the U.S. results of Khan and Watts (2008). Our measure of C-score is computed using Eq. 1. Since C-scores are not normally distributed, we use the decile rankings of C-score to calculate *Cdec*. We compute *Cdec* across all firms for all years. The mean *Cdec* for each country is shown in Table 1.

4.2 Auditor Choice Model

Table 4 reports the results of the auditor selection model in Eq. 3. Firms that are bigger, profitable, and cross-listed are more likely to select Big 4 auditors. Those firms that have lower inventory and receivables and lower leverage are more likely to hire Big 4 auditors. Firms located in countries with stronger legal enforcement and stronger investor protection rights (*ENF*), and with well-developed equity markets (*STK*), are more likely to appoint Big 4 auditors. The probit models generate firm specific inverse Mills ratios (*LAMBDA*) that we use in Eq. 4 to control for self-selection bias.

4.3 Big 4 Test Results

To test for a Big 4 effect we include the *Big4* variable in Eq. 4. We partition the sample into observations in high litigation and reputation cost countries and those in low litigation and reputation cost countries. An alternative approach would be to use the raw legal and institutional variable scores but we reject this research design for a variety of reasons. These reasons include: (1) the raw variables are non-normal; (2) the different scales make comparisons across variables more difficult; and (3) raw variables are noisier than using the dichotomy of above-and below-median indicator variables and result in greater measurement error.

Table 3 Regression results of the conservatism model for all firms in 36 countries

	Pooled regression		
	Coefficient	t-stat.	p-value
Intercept	0.110	87.00	0.00
D	−0.009	−4.03	0.00
R	0.043	10.08	0.00
R*SIZE	0.002	2.93	0.00
R*MB	−0.014	−40.65	0.00
R*LEV	0.282	42.24	0.00
D*R	0.311	30.23	0.00
D*R*SIZE	−0.048	−24.61	0.00
D*R*MB	0.036	22.60	0.00
D*R*LEV	−0.329	−20.63	0.00
Adj. R square	0.102		
N.observations	108,504		

This table reports the regression results of the conservatism model for all firms in 36 countries for the period of 1992–2007. The dependent variable, X, is earnings before interest and taxes scaled by beginning of year market capitalization. All other variables are defined in Appendix 4. Two tailed t-statistics and p-values are reported. The coefficients and the test statistics are based on the following regression model:

$$X_{cit} = \beta_1 + \beta_2 D_{cit} + R_{cit}(\mu_1 + \mu_2 SIZE_{cit} + \mu_3 MB_{cit} + \mu_4 LEV_{cit}) \\ + D_{cit}R_{cit}(\lambda_1 + \lambda_2 SIZE_{cit} + \lambda_3 MB_{cit} + \lambda_4 LEV_{cit}) + \varepsilon_{cit}$$

Table 4 Regression results on probit regression for all firms in 36 countries

	Expected sign	Pooled probit regression		
		Coefficient	χ^2	p-value
Intercept		2.326	517.38	0.00
LNTA	+	0.272	8925.91	0.00
CAPINT	+	−0.010	0.42	0.52
INVREC	+/−	−0.346	325.25	0.00
LEV	+/−	−0.709	853.66	0.00
LOSS	+/−	−0.088	81.90	0.00
CROSS	+	0.217	112.18	0.00
ENF	+	0.099	1296.53	0.00
FDI	+	−0.162	2.40	0.12
STK	+	0.001	206.55	0.00
GDP	−	−0.139	1284.81	0.00
Pseudo r square		0.1261		
N.observations		108,504		

This table reports the logistic regression results of the auditor selection model for all firms in 36 countries for the period of 1992–2007. The dependent variable, Big4, is equal to 1 if a company appoints one of the Big 4 auditors, and 0 otherwise. All other variables are defined in Appendix 4. χ^2 and p-values are reported. The coefficients and the test statistics are based on the following probit regression model:

$$Pr(Big4)_{cit} = \delta_0 + \delta_1 LNTA_{cit} + \delta_2 CAPINT_{cit} + \delta_3 INVREC_{cit} + \delta_4 LEV_{cit} + \delta_5 LOSS_{cit} \\ + \delta_6 CROSS_{cit} + \delta_7 ENF_{cit} + \delta_8 FDI_{cit} + \delta_9 STK_{cit} \\ + \delta_{10} GDP_{cit} + \varepsilon_{cit}$$

Table 5 Influence of auditor litigation risk on Big 4 conservatism

Legal institutions	Whole sample	Wingate (1997) litigation index		Easiness of auditor being sued		Severity of auditor sanction	
		Low	High	Low	High	Low	High
Intercept	1.047	1.101	1.042	1.014	1.055	0.982	1.051
	(34.92)	(25.38)	(29.56)	(22.22)	(30.78)	(29.45)	(23.31)
Big4	0.007	0.005	0.010	0.000	0.012	0.008	0.010
	(2.60)	(1.00)	(2.66)	(0.08)	(3.17)	(1.95)	(2.11)
lagSIZE	−0.103	−0.117	−0.102	−0.104	−0.103	−0.096	−0.102
	(−19.05)	(−19.38)	(−17.14)	(−19.96)	(−15.54)	(−16.83)	(−15.12)
lagMB	0.039	0.059	0.037	0.054	0.036	0.038	0.041
	(6.35)	(12.07)	(5.55)	(14.06)	(5.49)	(5.27)	(6.11)
lagLEV	−0.791	−0.827	−0.777	−0.828	−0.776	−0.786	−0.828
	(−57.10)	(−26.58)	(−60.91)	(−41.00)	(−55.73)	(−50.84)	(−34.31)
CROSS	0.015	0.002	0.023	0.007	0.023	0.020	0.008
	(1.32)	(0.19)	(1.90)	(0.84)	(1.87)	(1.70)	(0.98)
LAMBDA	0.100	0.061	0.106	0.122	0.096	0.145	0.121
	(4.12)	(1.90)	(3.77)	(3.50)	(3.40)	(5.06)	(2.85)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. r-squared	0.802	0.793	0.810	0.822	0.800	0.810	0.778
N.observations	108,504	20,283	80,388	28,394	80,110	82,340	26,164
Difference in coefficients for Big4 high minus low (t-value)		4.96		9.25		1.02	

This table reports the regression analysis on auditor litigation risk on Big 4 conservatism. The high versus low groups are defined according to the median level of auditor litigation risk variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. t-statistics are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis). The coefficients and the test statistics are based on the following regression model:

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} + \alpha_6 CROSS_{cit-1} + \alpha_7 LAMBDA_{cit} + Year\ dummies + \varepsilon_{cit}$$

Bushman and Piotroski (2006) also use the dichotomy of High and Low partitions rather than using the raw country scores. For Law origins, firms in code law countries are classified as Code and firms in common law countries are classified as Common. Tables 5, 6, 7, 8, and 9 show the regression results. Reported t-values are on an adjusted basis using robust standard errors corrected for clustering at the firm level (Gow et al. 2010; Petersen 2009). As we control for self-selection bias, positive coefficients on *Big4* will imply that it is the Big 4 auditors that exert pressure on companies to report conservatively rather than companies who report conservatively (on their own volition) choosing Big 4 auditors.

Table 6 Influence of legal institutions on Big 4 conservatism

Legal institutions	Law origins		Efficiency of the judiciary		Law enforcement	
	Code	Common	Low	High	Low	High
Intercept	1.022	1.028	1.096	1.030	1.059	1.060
	(30.86)	(37.01)	(20.62)	(33.02)	(21.02)	(33.92)
Big4	0.003	0.011	0.003	0.009	−0.001	0.011
	(1.64)	(3.77)	(1.06)	(2.55)	(−0.20)	(3.17)
lagSIZE	−0.106	−0.094	−0.112	−0.101	−0.109	−0.105
	(−21.22)	(−21.76)	(−14.63)	(−16.67)	(−15.01)	(−17.98)
lagMB	0.054	0.030	0.050	0.037	0.050	0.038
	(8.96)	(7.87)	(5.20)	(5.56)	(5.59)	(5.77)
lagLEV	−0.809	−0.779	−0.792	−0.787	−0.817	−0.777
	(−58.52)	(−33.19)	(−29.81)	(−50.76)	(−30.45)	(−60.27)
CROSS	0.024	0.002	0.004	0.022	0.007	0.018
	(2.05)	(0.26)	(0.32)	(1.90)	(0.70)	(1.34)
LAMBDA	0.122	0.110	0.055	0.118	0.081	0.089
	(4.28)	(5.46)	(1.40)	(5.07)	(2.27)	(3.30)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. r square	0.831	0.757	0.792	0.807	0.789	0.807
N.observations	61,629	46,875	23,978	84,526	22,830	85,674
Difference in coefficients for Big4, Common minus code (t-value); high minus low (t-value)	13.13		3.02		6.85	

This table reports the regression analysis on legal institutions on Big 4 conservatism. The high versus low groups are defined according to the median level of legal institutions variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. *t-statistics* are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis). The coefficients and the test statistics are based on the following regression model:

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} + \alpha_6 CROSS_{cit-1}$$
$$+ \alpha_7 LAMBDA_{cit} + Year\ dummies + \varepsilon_{cit}$$

In the first column of Table 5, we report the results of regression Eq. 4 using the Whole Sample: we find that the *Big4* variable is statistically significant with an expected positive sign, suggesting that the Big 4 are more conservative than the non-Big 4. We find that the coefficients on *lagSIZE* and *lagLEV* are significantly negative, suggesting that large firms and highly levered firms have lower conservatism. These results are in line with the following view: large firms tend to be monitored more closely and there is a lot of information about them. Therefore, they have less need for conservative accounting reports. Similarly, highly levered firms are closely monitored and also have a lower need for conservative accounting. Cross-listed firms (*CROSS*) have positive coefficients but they are not significant.

Table 7 Influence on security law on Big 4 conservatism

Security law	Liability standard		Public enforcement		Disclosure requirements		Anti-self dealing	
	Low	High	Low	High	Low	High	Low	High
Intercept	1.062	1.049	1.114	1.026	0.976	1.085	1.068	1.072
	(23.90)	(32.10)	(47.28)	(32.65)	(21.35)	(32.04)	(24.11)	(34.69)
Big4	−0.004	0.010	0.003	0.012	0.000	0.006	0.000	0.010
	(−0.80)	(2.39)	(1.69)	(3.79)	(0.04)	(1.68)	(0.04)	(3.47)
lagSIZE	−0.110	−0.098	−0.118	−0.097	−0.093	−0.107	−0.108	−0.106
	(−18.49)	(−14.43)	(−36.87)	(−21.41)	(−9.55)	(−20.01)	(−20.30)	(−18.17)
lagMB	0.056	0.031	0.062	0.032	0.035	0.043	0.048	0.038
	(12.12)	(3.61)	(14.01)	(8.32)	(2.82)	(7.83)	(8.17)	(5.66)
lagLEV	−0.796	−0.812	−0.821	−0.776	−0.808	−0.802	−0.813	−0.782
	(−41.64)	(−34.96)	(−70.35)	(−40.35)	(−36.00)	(−48.54)	(−31.26)	(−47.17)
CROSS	−0.001	−0.003	0.025	−0.003	−0.019	0.005	−0.001	0.021
	(−0.16)	(−0.35)	(2.24)	(−0.37)	(−1.38)	(0.54)	(−0.13)	(1.83)
LAMBDA	0.086	0.113	0.042	0.106	0.184	0.059	0.074	0.074
	(2.07)	(3.19)	(2.20)	(4.18)	(3.70)	(1.79)	(2.41)	(2.80)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. r square	0.824	0.765	0.845	0.767	0.783	0.791	0.811	0.801
N.observations	25,476	83,028	52155	56349	22,340	86,164	25,898	82,606
Difference in coefficients for Big4 high minus low (t-value)	11.63		8.36		9.48		6.69	

This table reports the regression analysis on security law and Big 4 conservatism. The high versus low groups are defined according to the median level of security laws variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. *t-statistics* are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis). The coefficients and the test statistics are based on the following regression model:

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} + \alpha_6 CROSS_{cit-1}$$
$$+ \alpha_7 LAMBDA_{cit} + Year\ dummies + \varepsilon_{cit}$$

Table 8 Influence of political economy and tax regime on security law on Big 4 conservatism

Political economy	Risk of expropriation		Stated-owned enterprises		Tax burden	
	Low	High	Low	High	Low	High
Intercept	1.025	1.083	1.055	1.066	1.064	0.975
	(25.83)	(34.95)	(26.26)	(31.25)	(27.17)	(59.57)
Big4	0.012	0.000	0.011	0.006	0.008	0.011
	(2.69)	(0.07)	(2.78)	(2.50)	(2.02)	(2.90)
lagSIZE	−0.101	−0.108	−0.104	−0.110	−0.106	−0.094
	(−15.42)	(−20.08)	(−16.98)	(−25.10)	(−15.60)	(−31.95)
lagMB	0.037	0.046	0.035	0.056	0.039	0.041
	(5.18)	(5.81)	(5.85)	(19.33)	(5.00)	(6.89)
lagLEV	−0.779	−0.811	−0.775	−0.827	−0.785	−0.804
	(−58.60)	(−30.98)	(−52.92)	(−39.77)	(−58.93)	(−26.03)
CROSS	0.025	−0.002	0.018	0.010	0.020	0.002
	(2.22)	(−0.27)	(1.34)	(1.15)	(1.46)	(0.20)
LAMBDA	0.118	0.075	0.089	0.090	0.089	0.149
	(3.75)	(2.74)	(2.51)	(3.38)	(2.87)	(8.25)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. r square	0.816	0.768	0.804	0.815	0.798	0.812
N.observations	78,173	30,331	75,637	32,867	79,301	29,203
Difference in coefficients for Big4 high minus low (t-value)	−6.69		−4.77		2.24	

This table reports the regression analysis on political economy and tax regime and Big 4 conservatism. The high versus low groups are defined according to the median level of political economy and tax regime variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. *t-statistics* are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis). The coefficients and the test statistics are based on the following regression model:

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} + \alpha_6 CROSS_{cit-1}$$
$$+ \alpha_7 LAMBDA_{cit} + Year\ dummies + \varepsilon_{cit}$$

Higher growth firms (*lagMB*) have more conservative accounting. *LAMBDA* is significant indicating that it is important to control for self-selection.

The Whole Sample results show that the Big 4 auditors are more conservative. But does this effect apply to both High and Low legal and institutional environments? If the answer is Yes, then this suggests the Big 4 have a uniform approach towards conservatism that transcends national boundaries and legal and institutional differences. If the answer is No, then this implies a Big 4's views on conservatism are flexible and depend on the legal and institutional environment.

For the partition based on auditor litigation risk (which we proxy with the Wingate litigation index), we see that *Big4* is positive and significant in the High partition regression but not in the Low partition regression. Furthermore, the

Table 9 Influence of financial market factors on Big 4 conservatism

Contracting and litigation	Stock price comovement		Concentrated ownership		Insider trading		Access to equity	
	Low	High	Low	High	Low	High	High	Low
Intercept	0.980	1.115	1.032	1.066	1.062	0.971	1.016	1.072
	(49.42)	(46.39)	(26.08)	(47.69)	(32.05)	(18.06)	(39.86)	(22.88)
Big4	0.019	0.003	0.009	0.003	0.010	0.000	0.013	0.002
	(8.23)	(1.77)	(2.15)	(0.85)	(2.69)	(−0.10)	(4.39)	(1.58)
lagSIZE	−0.091	−0.117	−0.101	−0.105	−0.105	−0.097	−0.095	−0.113
	(−28.80)	(−28.75)	(−15.10)	(−24.16)	(−17.74)	(−12.11)	(−24.39)	(−16.73)
lagMB	0.029	0.058	0.039	0.041	0.038	0.047	0.033	0.058
	(9.01)	(7.96)	(5.21)	(5.62)	(5.61)	(5.73)	(7.55)	(6.10)
lagLEV	−0.767	−0.820	−0.795	−0.785	−0.788	−0.808	−0.789	−0.793
	(−41.84)	(−56.26)	(−47.11)	(−30.36)	(−51.05)	(−23.93)	(−33.67)	(−51.46)
CROSS	0.006	0.026	0.016	−0.012	0.022	0.005	0.003	0.021
	(1.01)	(2.36)	(1.51)	(−1.28)	(1.92)	(0.51)	(0.57)	(1.50)
LAMBDA	0.146	0.053	0.108	0.095	0.088	0.162	0.124	0.080
	(8.78)	(2.48)	(3.33)	(4.08)	(3.15)	(3.18)	(7.32)	(2.13)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. r square	0.782	0.831	0.813	0.765	0.807	0.790	0.772	0.833
N.observations	42,896	59,915	84,759	23,745	87,858	20,534	57,357	51,023
Difference in coefficients for Big4 high minus low (t-value)	−15.04		−5.02		−7.44		−11.54	

This table reports the regression analysis on contracting and litigation and Big 4 conservatism. The high versus low groups are defined according to the median level of contracting and litigation variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. t-statistics are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis). The coefficients and the test statistics are based on the following regression model:

$$Cdec_{cit} = \alpha_1 + \alpha_2 Big4_{cit} + \alpha_3 SIZE_{cit-1} + \alpha_4 MB_{cit-1} + \alpha_5 LEV_{cit-1} + CROSS_{cit-1}$$
$$+ \alpha_7 LAMBDA_{cit} + Year\ dummies + \varepsilon_{cit}$$

coefficient on *Big4* in the High partition ($\alpha_2 = 0.010$) is larger than the coefficient on *Big4* in the Low partition ($\alpha_2 = 0.005$) and the difference is statistically significant (t = 4.96). We obtain similar results when the sample is partitioned using the easiness of auditor being sued. The *Big4* coefficient is positively significant only in countries where it is easy to sue the auditor (the High subsample). The *Big4* coefficient is positive and significant for firms located in countries where the severity of auditor sanctions is high. In contrast, *Big4* is not significant at the 0.05 level in the Low severity subgroup. However, the difference in the *Big4* coefficients across the High and Low partitions is not significant (t = 1.02). This lack of significant difference may be the result of the difficulty in identifying the high and low categories for severity (see the earlier discussion). The results reported in Table 5, taken together, suggest that the Big 4 auditors are more conservative for clients based in countries where litigation risk is high. Although the coefficients on *Big4* are also positive in the Low subsamples, they are not statistically significant. The other independent variables have similar coefficients and significance levels across the High, Low and Whole sample regressions.

The pattern of results shown in Table 5 is repeated for the legal institutions and securities laws factors. As shown in Tables 6 and 7, the Big 4 are more conservative in common law countries (law origins) and countries with high judicial efficiency, effective law enforcement, high liability standards, high public enforcement of laws, high disclosure requirements, and high (i.e., tough) anti-self dealing regulations. In all cases, the coefficients on the *Big4* variable for the High legal standard countries are statistically higher than the coefficients on the *Big4* variable in the Low legal standard countries. The results in Tables 5, 6, and 7 are unequivocal: the Big 4 are more conservative than their non-Big 4 brethren in countries where auditors are more likely to face litigation or sanctions. When litigation and sanctions are low, the Big 4 are indistinguishable from the non-Big 4.

Next, we turn our attention to factors that we group under the umbrella of political economy. Although these factors do not bear directly on auditor litigation, we argue that they can have an influence over the way auditors view conservatism and can create differences between Big 4 and non-Big 4 auditors. A high score for risk of expropriation indicates that the government is more likely to expropriate or nationalize private firms. When the risk of expropriation is low, firms have more freedom and face more market competition. This may result in firms using aggressive accounting. We argue that the Big 4 are more vigilant about conservatism than the non-Big 4 auditors in this situation. Hence we expect that the Big 4 will be more conservative in countries with a low risk of expropriation. The results shown in Table 8 give support to our argument. Specifically, *Big4* is positive and significant for the Low risk of expropriation subsample but is not significant in the High subsample. Furthermore, the *Big4* coefficient is statistically higher in the Low subsample (t = −6.69).

The proportion of state-owned enterprises within an economy is one indicator of economic freedom. Aggressive accounting is more likely when freedom is high and state influence is low. In this situation, we argue that Big 4 auditors will be more conservative than non-Big 4 auditors. This argument is similar to the one for

expropriation of assets. Consistent with our argument above, we find that the Big 4 auditors are even more conservative than the non-Big 4 auditors in countries characterized as having low government control (i.e., few state-owned enterprises). In particular, the difference in *Big4* coefficients (0.011 in the Low subsample and 0.006 in the High subsample) is statistically significant (Table 8).

When tax rates are very high, firms may want to report conservatively as lower earnings may translate to lower taxable profits. The Big 4 have more skill in identifying conservative accounting practices and their clients will have high C-scores. Table 8 confirms our expectation that the Big 4 auditors are more conservative than the non-Big 4 auditors in countries where the tax burden is high.

Table 9 shows the results from partitioning countries into High and Low groups based on financial market factors. Some countries are characterized as having high stock price synchronicity where the stock price co-moves with the market index. Here, a firm's stock price is largely determined by the movement of the stock market index and firm-specific information is less important. This implies investors rely less on a firm's financial statements and thus there may be less risk for the auditor. In contrast, when the stock price co-movement is low (i.e., low synchronicity, low VWR^2), firm-specific information is more important. When investors use firm-specific information, the auditors will face more risk and so we expect Big 4 auditors to be more conservative than the non-Big4 auditors in this setting. The results in Table 9 confirm our hypothesis. The Big4 are more conservative when stock price co-movement is low.

We code firms with highly concentrated ownership as High and firms with widely held shares as Low. Stockholders in widely held firms are more likely to rely on financial statements as agency costs are larger when managers and blockholders own fewer shares. We argue that the Big 4 will be more likely to be conservative in those countries with more widely held listed firms. The results reported in Table 9 bear out our argument. The difference in the *Big4* coefficients between the Low and High subsamples is significant (t = −5.02). Thus, the Big 4 are more conservative than non-Big 4 auditors in countries where share ownership is widely held.

When there is a lot of insider trading, financial statements become less important. Instead, investors attempt to mimic the insiders' trading. As financial statements become less important so does auditing. In contrast, financial statements play a more important role in countries with relatively less insider trading. We therefore argue that Big 4 auditors will be more conservative in countries where insider trading is low. The results in Table 9 show that the *Big4* coefficient in the Low subsample is statistically greater than the *Big4* coefficient in the High subsample. Thus, the results confirm our prediction.

In some countries there are few restrictions on raising capital on the stock market and so access to capital is easier. Other countries place more regulations on accessing capital markets and the auditor's role becomes more important. We argue that Big 4 auditors are more likely to demand conservative accounting in countries characterized as having heavily regulated IPO and SEO markets. Our results are consistent with this expectation (Table 10). In particular, the coefficient

Table 10 WLS regression results

Auditor litigation	Whole sample	Wingate ([1997](#)) litigation		Easiness of auditor being sued		Severity of auditor sanction	
		Low	High	Low	High	Low	High
Big4	0.003	0.007	0.008	−0.002	0.009	0.003	0.007
	(1.03)	(1.35)	(1.64)	(−0.40)	(2.19)	(0.75)	(1.63)
Difference in coefficients for Big4 high minus low (t-value)		4.11		12.10		2.61	
Legal institutions		Law origins		Efficiency of the judiciary		Law enforcement	
		Code	Common	Low	High	Low	High
Big4		0.001	0.007	−0.004	0.012	−0.008	0.013
		(0.14)	(1.41)	(−0.85)	(3.35)	(−1.14)	(4.10)
Difference in coefficients for Big4 high minus low (t-value)		9.72		7.90		10.34	
Security law	Liability standard		Public enforcement		Disclosure requirements		Anti-self dealing	
	Low	High	Low	High	Low	High	Low	High
Big4	−0.004	0.010	0.004	0.002	0.000	0.006	−0.003	0.007
	(−0.80)	(2.39)	(0.78)	(0.54)	(0.04)	(1.68)	(−0.44)	(1.48)
Difference in coefficients for Big4 high minus low (t-value)	11.63		1.08		9.48		5.27	
Political economy		Risk of expropriation		State-owned enterprises		Tax burden	
		Low	High	Low	High	Low	High
Big4		0.012	−0.006	0.004	0.004	−0.001	0.011
		(3.15)	(−1.12)	(0.64)	(0.92)	(−0.15)	(2.75)
Difference in coefficients for Big4 high minus low (t-value)		−9.74		−1.15		4.81	
Financial market factors	Stock return comovement		Concentrated ownership		Insider trading		Access to equity	
	Low	High	Low	High	Low	High	Low	High
Big4	0.016	−0.002	0.011	−0.005	0.012	−0.009	0.014	−0.005
	(3.85)	(−0.58)	(2.72)	(−0.91)	(3.69)	(−1.59)	(4.85)	(−1.11)
Difference in coefficients for Big4 high minus low (t-value)	−11.73		−10.77		−13.21		−12.53	

This table reports the weighted-least-square (WLS) regression results. The weight applied for each firm is the inverse of the number of firms for that country. The high versus low groups are defined according to the median level of country-level variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. Intercepts, coefficients on control variables and year dummies are not reported for parsimony. *t-statistics* are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis)

on *Big4* in the Low subsample regression is statistically higher than the coefficient on *Big4* in the High subsample regression (t $= -11.54$).

4.4 Sensitivity Checks

As shown in Table 1, Japan and the U.K. have a large number of observations (observations $= 27,669$ and $13,831$), relative to other countries. To alleviate a concern over potential problems that may arise from this unequal distribution of sample firms across the 36 countries, we apply weighted least squares (WLS) procedures by assigning smaller weights to countries with the largest number of sample firms. The weighting applied to each firm within a country is the inverse of the number of firms for that country. In the interests of parsimony, we just show the coefficients and statistical significances for our variable of interest, *Big4*, from the WLS regressions (Table 10). The results are consistent with these using the unweighted OLS regressions shown in Tables 5, 6, 7, 8, and 9.

We also repeat the OLS analyses in Tables 5, 6, 7, 8, and 9 but exclude observations from Japan and the U.K. The coefficients and statistical significances of *Big4* are shown in Table 11. The results and conclusions are broadly the same as those shown in Tables 5, 6, 7, 8, and 9. Overall, the results in Tables 10 and 11 suggest that the results reported in Tables 5, 6, 7, 8, and 9 are robust to the unequal distribution of sample firms across different countries.

We also run firm fixed effect models to control for unobserved firm-specific factors. The coefficients for the *Big4* variable are shown in Table 12. The results are similar to those shown in Tables 5, 6, 7, 8, 9, 10, and 11. In sum, the results are robust to alternative samples and regression specifications.

5 Conclusion

Conservatism is a concept that underscores accounting practice and formal professional standards. It is widely accepted that companies use conservative accounting although the degree of conservatism varies according to legal and institutional circumstances (Bushman and Piotroski 2006). As the auditor heavily influences a company's accounting choices, we argue that the auditor is a major driver of conservatism. One reason for an auditor's conservatism is their concern about lawsuits and loss of reputation that may result if the client adopts less conservative accounting and reports inflated earnings. However, we contend that auditors do not have homogeneous views on conservatism. In particular, large audit firms have a lot more to lose from litigation and loss of reputation and so they will be more conservative than small audit firms. One open question, however, is whether large audit firms will maintain a conservatism premium, vis-à-vis smaller audit firms, in those jurisdictions that are less litigious and where investor protection and

Table 11 Robustness checks: Excluding Japan and United Kingdom

The coefficients on the **Big4** dummy are reported on the first line and the *t*-statistic (in parenthesis) on the second line. The "Difference in coefficients for Big4 high minus low (*t*-value)" row reports the *t*-value of the difference between the high and low group coefficients.

Auditor litigation

Partition	Low	High	Difference (Big4 high − low, *t*-value)
Whole sample	0.006 (2.28)		
Wingate (1997) litigation	0.005 (1.04)	0.010 (2.30)	5.44
Easiness of auditor being sued	0.000 (0.11)	0.012 (4.35)	9.30
Severity of auditor sanction	0.006 (1.66)	0.010 (2.14)	0.21

Legal institutions

Partition	Low / Code	High / Common	Difference (Big4 high − low, *t*-value)
Law origins	Code 0.003 (0.86)	Common 0.010 (3.03)	7.78
Efficiency of the judiciary	0.003 (1.08)	0.012 (3.62)	4.92
Law enforcement	−0.001 (−0.19)	0.012 (4.06)	7.22

Security law

Partition	Low	High	Difference (Big4 high − low, *t*-value)
Liability standard	0.002 (0.46)	0.010 (2.23)	9.14
Public enforcement	0.004 (1.04)	0.009 (2.73)	3.39
Disclosure requirements	0.002 (0.46)	0.010 (2.23)	5.93
Anti-self dealing	0.000 (0.04)	0.011 (3.33)	7.32

Political economy

Partition	Low	High	Difference (Big4 high − low, *t*-value)
Risk of expropriation	0.014 (3.01)	0.000 (0.12)	−6.79
State-owned enterprises	0.009 (1.75)		−6.32
Tax burden	0.014 (3.01)	0.000 (0.12)	2.95

Financial market factors

Partition	Low	High	Difference (Big4 high − low, *t*-value)
Stock return comovement	0.020 (5.95)	0.001 (0.51)	−8.98
Concentrated ownership	0.009 (1.87)	0.003 (0.85)	−5.38
Insider trading	0.010 (2.52)	0.000 (−0.10)	−7.69
Access to equity	0.014 (4.38)	0.001 (0.31)	−7.45

This table reports the regression results excluding firms from Japan and United Kingdom. The high versus low groups are defined according to the median level of country-level variables across countries in our sample. The sample consists of 67,704 firm-year observations drawn from 34 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. Intercepts, coefficients on control variables and year dummies are not reported for parsimony. *t-statistics* are calculated using adjusted standard errors corrected for country-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis).

Table 12 Firm fixed effect regression

Auditor litigation

	Whole sample	Wingate (1997) litigation		Easiness of auditor being sued		Severity of auditor sanction	
		Low	High	Low	High	Low	High
Big4	0.008	0.009	0.008	−0.002	0.012	0.007	0.013
	(5.08)	(3.13)	(4.49)	(−0.68)	(6.30)	(4.09)	(4.31)
Difference in coefficients for Big4 high minus low (t-value)		2.04		10.31		2.00	

Legal institutions

	Law origins		Efficiency of the judiciary		Law enforcement	
	Code	Common	Low	High	Low	High
Big4	0.002	0.014	0.003	0.011	−0.001	0.011
	(1.16)	(5.61)	(1.07)	(6.16)	(−0.28)	(6.18)
Difference in coefficients for Big4 high minus low (t-value)	13.19		3.19		6.95	

Security law

	Liability standard		Disclosure requirements		Anti-self dealing	
	Low	High	Low	High	Low	High
Big4	−0.004	0.012	0.005	0.008	0.000	0.010
	(−1.61)	(6.50)	(1.46)	(4.87)	(0.08)	(5.72)
Difference in coefficients for Big4 high minus low (t-value)	10.58		3.19		6.77	

Political economy

	Public enforcement		State-owned enterprises		Tax burden	
	Low	High	Low	High	Low	High
Big4	0.003	0.012	0.005	0.010	0.008	0.008
	(1.99)	(5.46)	(2.14)	(5.33)	(4.50)	(2.88)
Difference in coefficients for Big4 high minus low (t-value)	8.06		4.79		−2.19	

Financial market factors

	Stock return comovement		Risk of expropriation		Concentrated ownership		Insider trading		Access to equity	
	Low	High	Low	High	Low	High	Low	High	Low	High
Big4	0.018	0.004	0.010	0.004	0.011	0.002	0.010	−0.001	0.017	0.001
	(6.78)	(2.22)	(5.27)	(1.36)	(6.21)	(0.46)	(6.16)	(−0.18)	(7.67)	(0.58)
Difference in coefficients for Big4 high minus low (t-value)	−13.54		−4.65		−4.50		−5.80		−13.46	

This table reports the firm fixed effect regression analysis. The high versus low groups are defined according to the median level of country-level variables across countries in our sample. The sample consists of 108,504 firm-year observations drawn from 36 countries for the period of 1992–2007. The dependent variable, Cdec, is the decile ranking of C-score, estimated from Eq. 2 in a pooled regression. All other variables are defined in Appendix 4. Intercepts, coefficients on control variables and year dummies are not reported for parsimony. *t-statistics* are calculated using adjusted standard errors corrected for firm-level clustering (Petersen 2009). The first line shows the coefficient and the second line shows the t-statistic (in parenthesis)

regulatory oversight is weaker. On the one hand, large auditors could establish a strong global image for conservatism that is impervious to the legal and institutional environments of where they operate. On the other hand, large audit firms may be more flexible in their application of conservative accounting practices and take into account the probabilities and costs of litigation in the client's country of domicile. This is the central question in our study.

We use the model developed by Khan and Watts (2008, 2009) to capture conservatism. The conservatism score (C-score) avoids the problems associated with the Basu model, which has been widely used in the past. To the best of our knowledge, this is one of the first applications of the C-score and first one to use international data. We use the Big 4 as a proxy for large audit firms. Self-selection bias may affect the results, and so we use a two-stage 'treatment effects' research design to alleviate this concern.

Using a large sample of client firms from 36 countries, we find that Big 4 clients use more conservative accounting when clients are located in countries that are litigious and where investor protection rights are strong. This represents a rational response to the increased threat of litigation and loss of reputation that come from such environments. We also find that the political economy and financial market factors of a country can have an impact on the conservatism premium of a Big 4 audit. Our study adds to the literature by demonstrating that the Big 4 have flexible views on conservatism, which depend on the threat of litigation within a specific country.

Appendix 1

Definitions of litigation and other country institutions variables and data sources

Description	Variable	Definition of variable and data source
Wingate (1997) litigation index	*Litigate*	Natural log of the Wingate (1997) litigation index. This index is derived from an assessment of litigiousness for doing business as an auditor in each country and was developed by an international insurance underwriter for one of the Big 4 auditors. This index ranges from 1 to 15 with the U.S. taking the highest value of 15 among our sample countries (Source: Wingate (1997))
Easiness of auditor being sued	*Sue*	Index of the procedural difficulty in recovering losses from the auditors in a civil liability case for losses due to misleading statements in the audited financial information accompanying the prospectus. Equals one when

Description	Variable	Definition of variable and data source
		investors are only required to prove that the audited financial information accompanying the prospectus contains a misleading statement. Equals two-thirds when investors must also prove that they relied on the prospectus and/or that their loss was caused by the misleading accounting information. Equals one-third when investors must also prove that auditor acted with negligence. Equals zero if restitution from the auditor is either unavailable or the liability standard is intent or gross negligence (Source: The World Bank)
Severity of auditor sanction	*Sanction*	An index of criminal sanctions applicable to auditor (or its officers) when the financial statements accompanying the prospectus omit material information. Equals zero if the auditor cannot be held criminally liable when the financial statements accompanying the prospectus are misleading. Equals one-half if the auditor can be held criminally liable when aware that the financial statements accompanying the prospectus are misleading. Equals one if the auditor can also be held criminally liable when negligently unaware that the financial statements accompanying the prospectus are misleading (Source: The World Bank)
Law origins	*Law*	Equals one if a country has a common law legal origin and zero otherwise (Source: La Porta et al. (1998))
Anti-director rights	*Antidir*	This index of Anti-director summarizes the protection of minority shareholders in the corporate decision-making process. The index is formed by summing: (1) vote by mail; (2) shares not deposited; (3) cumulative voting; (4) oppressed minority; (5) pre-emptive rights; and (6) capital to call a meeting. The range for the index is from zero to six (Source: Djankov et al. (2008))
LawRule	*LawRule*	Assessment of the law and other conditions in the country produced by the country risk rating agency International Country Risk (ICR). Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for less tradition for law and other (Source: La Porta et al. (1998))
Law enforcement	*Enf*	Calculated as 0.5*(rule of law index) + anti-director rights
Efficiency of the judiciary	*EffJud*	Assessment of the efficiency and integrity of the legal environment as it affects business, particularly foreign firms, produced by the country risk rating agency International Country Risk (ICR). It 'may be taken to represent investors' assessment of conditions in the country in question.' Average between 1980 and 1983. Scale from 0 to 10, with lower scores representing lower efficiency levels (Source: La Porta et al. (1998))
Liability standard	*LiabStd*	The index of liability standards equals the arithmetic mean of: (1) Liability standard for the issuer and its directors; (2) Liability standard for the distributor; and (3) Liability standard for the accountant. The index ranges from 0 to 1, with higher values indicating less procedural difficulty

Description	Variable	Definition of variable and data source
		in recovering losses from agents (Source: La Porta et al. (2006))
Public enforcement	*PubEnf*	The index of public enforcement equals the arithmetic mean of: (1) Supervisor characteristics index; (2) Rule-making power index; (3) Investigative powers index; (4) Orders index; and (5) Criminal index. The variable is ranked between 0 (weak public enforcement) to 1 (strong public enforcement) (Source: La Porta et al. (2006))
Disclosure requirements	*DisclReq*	An index of disclosure requirements relating to: (1) prospectus; (2) compensation of directors and key officers; (3) ownership structure; (4) inside ownership; (5) contracts outside the ordinary course of business; and (6) transactions between the issuer and its directors, officers, and/or large shareholders. The index ranges from 0 to 1; with higher values indicating more extensive disclosure requirements (Source: La Porta et al. (2006))
Anti-self-dealing index	*Anti-self-dealing index*	Average of ex ante and ex post private control of self-dealing. Index of ex ante control of self-dealing transactions is based on the average of approval by disinterested shareholders and ex ante disclosure. Index of ex post control over self-dealing transactions is based on the average of disclosure in periodic filings and ease of proving wrongdoing. First principal component of: (1) approval by disinterested shareholders; (2) disclosures by Buyer; (3) disclosures by the insider self-dealer; (4) independent review; (5) each of the elements in the index of disclosure in periodic filings; (6) standing to sue; (7) rescission; (8) ease of holding the insider self-dealer liable; (9) ease of holding the approving body liable; and (10) access to evidence. The index ranges from zero (weak private enforcement) to one (strong private enforcement) (Source: Djankov et al. (2008))
Risk of expropriation	*RiskExp*	International Country Risk (ICR)'s assessment of 'outright confiscation' or 'forced nationalization.' Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores for higher risks (Source: La Porta et al. (1999))
State-operated business	*SOE*	Governance enterprises and investment as a percentage of GDP. Data on the number, composition and share of output supplied by State-operated enterprises and government investment as a share of total investment were used to construct the 0 (high percentage)-to-10 (low percentage) ratings. All country-year observations are based on 2001 ratings (Source: Economic Freedom of the World: 2002 Annual Report)
Tax burden	*Burden*	Data on the top marginal tax rate and the income thresholds at which they take effect used to construct a rating of taxation. Countries with higher marginal tax rates that take effect at lower income thresholds receive lower ratings. Rankings based on a scale from 0 (low) to 10 (high). All country-year observations are based on the

(continued)

Description	Variable	Definition of variable and data source
		2001 ratings (Source: Economic Freedom of the World: 2002 Annual Report)
Stock return comovement	VWR^2	Value-weighted R^2, a measure of stock price synchronicity. Following Morck et al. (2000), R^2 is estimate from an expanded market model regression. Jin and Myers (2006) measure a country's stock market synchronicity by its average R^2 for each year. Lower R^2 reflects larger firm-level information content in stock price and indicates higher stock return variation (Source: Jin and Myers (2006))
Concentrated ownership	*Concer*	Average percentage of common shares owned by the top three shareholders in the ten largest non-financial, privately-owned domestic firms in a given country. A firm is considered privately-owned if the State is not a known shareholder in it (Source: La Porta et al. (1999), Hartland-Peel (1996) for Kenya, Bloomberg and various annual reports for Ecuador, Jordan, and Uruguay)
Insider trading	*Insider*	Prevalence of insider trading. The score ranges from 1 to 7. 1 = pervasive; 7 = extremely rare (Source: Schwab et al. (1999))
Access to equity	*Access*	Index of the extent to which business executives in a country agree with the statement "Stock markets are open to new firms and medium-sized firms." Scale from 1 (strongly agree) though 7 (strongly disagree) (Source: Schwab et al. (1999), La Porta et al. (2006))

Appendix 2

Details on auditor litigation risk, legal institutions, security law, political economy, and financial market factor

Country	Litigate	Sue	Sanction	Law	LawRule	AntiDir	Enf	EffJud	LiabStd	PubEnf	DisclReq	Anti-self dealing	RiskExp	SOE	Burden	VWR²	Concentrated ownership		Insider Access
Argentina	–	0.33	0	0	5.35	2	6	4.68	0.22	0.58	0.5	0.34	5.91	10	8	0.27	0.53	3.5	3.23
Australia	10	0.66	0.5	1	10	4	10	9.00	0.66	0.9	0.75	0.76	9.27	10	3	0.22	0.28	5.7	6
Austria	3.6	0	0.5	0	10	2.5	9.5	7.50	0.11	0.17	0.25	0.21	9.69	10	2	0.24	0.58	5.5	4.89
Belgium	4.8	0.66	1	0	10	3	9.5	8.00	0.44	0.15	0.42	0.54	9.63	10	1	0.24	0.54	5.1	5.7
Brazil	–	0.33	0	0	6.32	5	5.75	8.16	0.33	0.58	0.25	0.27	7.62	10	5	–	0.57	4	4.05
Canada	8.1	1	1	1	10	4	9.25	9.00	1	0.8	0.92	0.64	9.67	10	5	0.21	0.40	5.2	6.39
Chile	2.4	0.33	0.5	0	7.02	4	7.25	7.51	0.44	0.6	0.58	0.63	7.5	6	5	0.22	0.45	4.3	4.8
Colombia	–	0.33	0.5	0	2.08	3	7.25	4.04	0.33	0.58	0.42	0.57	6.95	0	5.5	0.21	0.63	4	2.78
Denmark	4.8	1	0	0	10	4	10	9.00	0.55	0.37	0.58	0.46	9.67	10	5	0.2	0.45	5.5	5.87
Egypt	–	0.33	0.5	0	4.17	3	6.5	5.09	0.22	0.3	0.5	0.2	6.3	4	7	–	0.62	–	5.2
Finland	3.6	0.66	0.5	0	10	3.5	10	8.50	0.66	0.32	0.5	0.46	9.67	8	2	0.22	0.37	5.5	6.37
France	6.2	0.33	0.5	0	8.98	3.5	8	7.99	0.22	0.77	0.75	0.38	9.65	4	1	0.23	0.34	5.1	5.75
Germany	6.2	0	0.5	0	9.23	3.5	9	8.12	0	0.22	0.42	0.28	9.9	6	4	0.24	0.48	4.9	5.93
Greece	3.6	0.33	0.5	0	6.18	2	7	5.09	0.5	0.32	0.33	0.22	7.12	8	4	–	0.67	3.2	5.28
Hong Kong	10	0.66	1	1	8.22	5	10	9.11	0.66	0.87	0.92	0.96	8.29	10	10	0.27	0.54	4.4	5.5
India	2.4	0.66	1	1	4.17	5	8	7.09	0.66	0.67	0.92	0.58	7.75	6	8	0.32	0.40	3.5	5.3
Indonesia	3.6	0.66	0.5	0	3.98	4	2.5	5.99	0.66	0.62	0.5	0.65	7.16	4	6	0.14	0.58	2.8	4.53
Ireland	6.2	0.66	1	1	7.8	5	8.75	8.90	0.44	0.37	0.67	0.79	9.67	10	4.5	0.2	0.39	5.4	5.29
Israel	–	0.66	0.5	1	4.82	4	10	6.41	0.66	0.63	0.67	0.73	8.25	2	2.5	–	0.51	4.9	5.35
Italy	6.2	0.33	0.5	0	8.33	2	6.75	6.17	0.22	0.48	0.67	0.42	9.35	6	3	–	0.58	4.2	4.41
Japan	4.8	0.66	0	0	8.98	4.5	8.66	8.99	0.66	0	0.75	0.5	9.67	7	5	0.28	0.18	5.1	4.92
South Korea	3.6	0.33	0.5	0	5.35	4.5	6	7.18	0.66	0.25	0.75	0.47	8.31	7	5.5	0.28	0.23	4.4	5.02
Malaysia	3.6	0.66	1	1	6.78	5	9	8.39	0.66	0.77	0.92	0.95	7.95	10	8	0.29	0.54	4.4	5.11
Mexico	4.8	0.33	0.5	0	5.35	3	6	5.68	0.11	0.35	0.58	0.17	7.29	10	5	0.24	0.64	3.8	3.9
New Zealand	10	0.66	0	1	10	4	10	9.00	0.44	0.33	0.67	0.95	9.69	10	5	0.22	0.48	5.6	5.82
Norway	6.2	0.66	1	0	10	3.5	10	8.50	0.39	0.32	0.58	0.42	9.88	8	3.5	0.22	0.36	4.1	5.57

Peru	–	0.66	0.5	0	2.5	3.5	6.75	4.75	0.66	0.78	0.33	0.45	5.54	7	6.5	0.23	0.56	3.5	3.84
Portugal	3.6	0.66	0	0	8.68	2.5	5.5	6.84	0.66	0.58	0.42	0.44	8.9	6	4	0.2	0.52	4.9	4.5
Singapore	4.8	0.66	1	1	8.57	5	5	9.29	0.66	0.87	1	1	9.3	8	9	0.27	0.49	5.5	5.5
South Africa	–	0.66	0.5	1	4.42	5	6	7.21	0.66	0.25	0.83	0.81	6.88	4	4	0.23	0.52	4.3	5.94
Spain	4.8	0.66	0.5	0	7.8	5	6.25	8.90	0.66	0.33	0.5	0.37	9.52	4	5	0.27	0.51	4.1	5.09
Sri Lanka	–	0.66	0.5	1	1.9	4	7	4.95	0.39	0.43	0.75	0.39	6.05	4	7	–	0.60	4.2	–
Sweden	4.8	0.33	0.5	0	10	3.5	10	8.50	0.28	0.5	0.58	0.33	9.4	6	0.5	0.22	0.28	5	6.15
Thailand	–	0	1	1	6.25	4	3.25	7.13	0.22	0.72	0.92	0.81	7.42	4	7	0.24	0.47	3.3	4.24
Turkey	2.4	0.33	0.5	0	5.18	3	4	5.59	0.22	0.63	0.5	0.43	7	6	4.5	0.34	0.59	3.8	5.03
United Kingdom	10	0.66	0.5	1	8.57	5	10	9.29	0.66	0.68	0.83	0.95	9.71	10	5	0.21	0.19	6.2	6.26

Classification of auditor litigation risk, legal institutions, security law, political economy, and financial market factor variables: high versus low realization

Country	Auditor litigation risk			Legal institutions			Security law			
	Wingate litigation index	Easiness of auditor being sued	Severity of auditor sanction	Law origins	Efficiency of the judiciary	Law enforcement	Liability standard	Public enforcement	Disclosure requirements	Anti-self dealing
Argentina	–	Low	Low	Low	Low	Low	Low	High	Low	Low
Australia	High	High	Low	High	High	High	High	High	High	High
Austria	Low	Low	Low	Low	High	Low	Low	Low	Low	Low
Belgium	High	High	High	Low	High	High	Low	Low	Low	High
Brazil	–	Low	Low	Low	Low	High	Low	High	Low	Low
Canada	High	High	High	High	High	High	High	High	High	High
Chile	Low	Low	Low	Low	Low	Low	Low	High	Low	High
Colombia	–	Low	Low	Low	Low	Low	Low	High	Low	High
Denmark	High	High	Low	Low	High	High	High	Low	Low	Low
Egypt	–	Low	Low	Low	Low	Low	Low	Low	Low	Low
Finland	Low	High	Low	Low	High	High	High	Low	Low	Low
France	High	Low	Low	Low	High	High	Low	High	Low	Low
Germany	High	Low	High	Low	High	High	Low	Low	High	Low
Greece	Low	Low	Low	Low	Low	Low	High	Low	Low	Low
Hong Kong	High	High	High	High	High	High	High	High	High	High
India	Low	High	High	High	High	Low	High	High	High	High
Indonesia	Low	High	Low	Low	Low	Low	High	High	Low	High
Ireland	High	High	High	High	High	High	Low	High	High	High
Israel	–	High	Low	High	High	Low	High	High	High	High
Italy	High	Low	Low	Low	Low	Low	High	Low	High	Low
Japan	High	High	Low	Low	High	High	High	Low	High	High
Korea	Low	Low	Low	Low	Low	Low	High	Low	High	High
Malaysia	Low	High	High	High	High	High	High	High	High	High
Mexico	High	Low	Low	Low	Low	Low	Low	Low	Low	Low
New Zealand	High	High	Low	High	High	High	Low	Low	High	High

Country										
Norway	High	High	High	Low	High	High	Low	Low	Low	Low
Peru	–	High	Low	Low	Low	Low	High	High	Low	Low
Portugal	Low	High	Low	Low	Low	Low	High	High	Low	Low
Singapore	High	High	High	High	Low	High	High	High	High	High
South Africa	–	High	Low	High	Low	Low	High	Low	High	High
Spain	High	High	Low	Low	Low	High	High	Low	Low	Low
Sri Lanka	–	High	Low	High	Low	Low	Low	Low	High	Low
Sweden	High	Low	Low	Low	High	High	Low	Low	Low	Low
Thailand	–	Low	High	High	Low	Low	Low	High	High	High
Turkey	Low	Low	Low	Low	Low	Low	Low	High	Low	Low
United Kingdom	High	High	Low	High	High	High	High	High	High	High

Appendix 3

Country	Political economy			Financial market factors			
	Risk of expropriation	State–operated business	Tax burden	Stock return comovement	Concentrated ownership	Insider trading	Access to equity
Argentina	High	Low	Low	High	High	High	High
Australia	Low	Low	High	Low	Low	Low	Low
Austria	Low	Low	High	High	High	Low	High
Belgium	Low	Low	High	High	High	Low	Low
Brazil	High	Low	Low	–	High	High	High
Canada	Low	Low	Low	Low	Low	Low	Low
Chile	High	High	Low	Low	Low	High	High
Colombia	High	High	Low	Low	High	High	High
Denmark	Low	Low	Low	Low	Low	Low	Low
Egypt	High	High	Low	_	High	_	High
Finland	Low	Low	High	Low	Low	Low	Low
France	Low	High	High	Low	Low	Low	Low
Germany	Low	High	High	High	Low	Low	Low
Greece	High	Low	High	_	High	High	Low
Hong Kong	High	Low	Low	High	High	Low	Low
India	High	High	Low	High	Low	High	Low
Indonesia	High	High	Low	Low	High	High	High
Ireland	Low	Low	High	Low	Low	Low	Low
Israel	High	High	High	_	High	Low	Low
Italy	Low	High	High	_	High	High	High
Japan	Low	Low	Low	High	Low	Low	High
Korea	High	Low	Low	High	Low	Low	High
Malaysia	High	High	Low	High	High	Low	High
Mexico	High	Low	Low	High	High	High	High
New Zealand	Low	Low	Low	Low	Low	Low	Low
Norway	Low	Low	High	Low	Low	High	Low
Peru	High	Low	Low	Low	High	High	High
Portugal	Low	High	High	Low	High	Low	High
Singapore	Low	Low	Low	High	Low	Low	Low
South Africa	High	High	High	Low	High	High	Low
Spain	Low	High	Low	High	High	High	High
Sri Lanka	High	High	Low	_	High	High	_
Sweden	Low	High	High	Low	Low	Low	Low
Thailand	High	High	Low	High	Low	High	High
Turkey	High	High	High	High	High	High	High
United Kingdom	Low	Low	Low	Low	Low	Low	Low

Appendix 4

Definitions of Firm Specific Variables

X	is earnings before interest and taxes deflated by lagged market capitalization.
R	is stock return, inclusive of dividends, over the fiscal year.
SIZE	is the natural log of market capitalization at the end of the fiscal year (in USD, $million).
MB	is the ratio of market value of equity to the book value of equity, measured at the end of the fiscal year.
LEV	is the total liability divided by total assets, measured at the end of the fiscal year.
LNTA	is the natural log of total assets at the end of the fiscal year (in USD, $million).
CAPINT	is the fixed assets divided by total assets at the end of the fiscal year.
INVREC	is the sum of inventory and receivables divided by total assets, measured at the end of the fiscal year.
LOSS	is equal to 1 if net income before extraordinary is negative in the prior year and 0 otherwise.
CROSS	is equal to 1 if a company trades ADRs (American Depository Receipts) and 0 otherwise.
BIG4	is equal to 1 if a company appoints one of the Big 4 auditors and 0 otherwise.
C-score	is estimated from Eq. 2 in a pooled regression.
Cdec	is decile ranking of C-score, estimated from Eq. 2 in a pooled regression.
Industry indicators	are based on the two-digit SIC code.
FDI	is the net foreign investment scaled by total GDP for the country in each year.
STK	is the total market capitalization to scaled by total GDP for the country in each year.
GDP	is the natural log of Gross Domestic Investment (in thousands of US dollars) for the country in each year.

References

Ali, A., & Hwang, L. S. (2000). Country-specific factors related to financial reporting and the relevance of accounting data. *Journal of Accounting Research, 38*, 1–21.

Ball, R., Kothari, S., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29*, 1–51.

Ball, R., Robin, A., & Wu, J. (2003). Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*, 235–270.

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*, 168–205.

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

Beaver, W., & Ryan, S. (2005). Conditional and unconditional conservatism: Concepts and modeling. *Review of Accounting Studies, 10*, 269–309.

Bushman, R., & Piotroski, J. (2006). Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of Accounting and Economics, 42*, 107–148.

Bushman, R., Piotroski, J., & Smith, A. (2004). What determines corporate transparency? *Journal of Accounting Research, 42*, 207–252.

Choi, J. H., & Wong, T. J. (2007). Auditors' governance functions and legal environments: An international comparison. *Contemporary Accounting Research, 24*, 13–46.

Choi, J.-H., Kim, J.-B., Liu, X., & Simunic, D. A. (2008). Audit pricing, legal liability regimes, and Big 4 premiums: Theory and cross-country evidence. *Contemporary Accounting Research, 25*, 55–100.

Chung, R., Firth, M., & Kim, J.-B. (2003). Auditor conservatism and reported earnings. *Accounting and Business Research, 33*, 19–32.

Chung, R., Firth, M., & Kim, J. -B. (2004). *Big 4 conservatism around the world*. Working Paper, The Hong Kong Polytechnic University.

Dhaliwal, D. S., Huang, S. X., Khurana, I., & Pereira, R. (2010) *Product market competition and accounting conservatism*. SSRN eLibrary.

Dietrich, J., Muller, K., & Riedl, E. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies, 12*, 95–124.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2008). The law and economics of self-dealing. *Journal of Financial Economics, 88*, 430–465.

Francis, J. R., & Wang, D. (2008). The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemporary Accounting Research, 25*, 157–191.

Francis, J. R., Wang, D., & Nikitkov, A. (2004). *The effect of legal environment on Big Five conservatism around the world*. Working Paper, University of Missouri.

Frankel, R. M., & Roychowdhury, S. (2009). *Are all special items equally special? The Predictive Role of Conservatism*. SSRN eLibrary.

Giner, B., & Rees, W. (2001). On the asymmetric recognition of good and bad news in France, Germany and the United Kingdom. *Journal of Business Finance and Accounting, 28*, 1285–1331.

Givoly, D., Hayn, C., & Natarajan, A. (2007). Measuring reporting conservatism. *The Accounting Review, 82*, 65–106.

Gow, I., Ormazabal, G., & Taylor, D. (2010). Correcting for cross-sectional time-series dependence in accounting research. *The Accounting Review, 85*, 483–512.

Greene, W. (1997). *Econometric analysis* (3rd ed.). Upper Saddle River: Prentice Hall.

Gul, F. A., Kim, J.-B., & Qiu, A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics, 95*, 425–442.

Hartland-Peel, C. (1996). *African equities: A guide to markets and companies*. London: Euromoney Publications.

Hogan, C. E. (1997). Costs and benefits of audit quality in the IPO market: A self-selection analysis. *The Accounting Review, 72*, 67–86.

Huijgen, C., & Lubberink, M. (2005). Earnings conservatism, litigation, and contracting: The case of cross-listed firms. *Journal of Business Finance and Accounting, 32*, 1275–1310.

Hung, M. (2001). Accounting standards and value relevance of financial statements: An international analysis. *Journal of Accounting and Economics, 30*, 401–420.

Jin, L., & Myers, S. (2006). R^2 around the world: New theory and new tests. *Journal of Financial Economics, 79*, 257–292.

Khan, M., & Watts, R. (2008). *Estimation and validation of a firm-year measure of conservatism.* Working Paper, The Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.

Khan, M., & Watts, R. (2009). Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics, 48*, 132–150.

Kim, J. -B., & Shi, H. (2011). *International financial reporting standards, analyst following, institutional infrastructure, and stock price synchronicity around the world.* Working Paper, City University of Hong Kong and Fudan University.

Kim, J. -B., & Zhang, L. (2011). *Does accounting conservatism reduce stock price crash risk? Firm-level evidence.* Working Paper, City University of Hong Kong.

Kim, J.-B., Chung, R., & Firth, M. (2003). Auditor conservatism, asymmetric monitoring, and earnings management. *Contemporary Accounting Research, 20*, 323–359.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. *Journal of Finance, 52*, 1131–1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy, 106*, 1113–1155.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the World. *Journal of Finance, 54*, 471–518.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics, 58*, 3–27.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2006). What works in securities laws? *Journal of Finance, 61*, 1–32.

Lafond, R., & Watts, R. L. (2008). The information role of conservatism. *The Accounting Review, 83*, 447–478.

Lang, M., Raedy, J. S., & Yetman, M. H. (2003). How representative are firms that are cross-listed in the United States? An analysis of accounting quality. *Journal of Accounting Research, 41*, 363–386.

Leuz, C., Nanda, D., & Wyscocki, P. D. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics, 69*, 505–527.

Lewis, R., & Pendrill, D. (1996). *Advanced financial accounting* (5th ed.). London: Pitman Publishing.

Likierman, A. (1989). *Professional liability: Report of the study teams.* London: Department of Trade and Industry, HMSO.

London Economics. (2006). *Study on the economic impact of auditors' liability regimes.* Final Report to EC-DG Internal Markets and Services.

Louis, H., Lys, T. Z., & Sun, A. X. (2011). *Conservatism and analyst earnings forecast bias.* SSRN eLibrary.

Maddala, G. (1983). *Limited-dependent and qualitative variables in econometrics.* New York: Cambridge University Press.

Mitchell, A., Puxty, A., Sikka, P., & Willmott, H. (1991). *Accounting for change: Proposals for reform of audit and accounting.* London: Fabian Society.

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock prices: Why do emerging markets have synchronous stock price movements? *Journal of Financial Economics, 58*, 215–260.

Penman, S., & Zhang, X. J. (2002). Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review, 77*, 237–264.

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

Pope, P., & Walker, M. (1999). International differences in the timeliness, conservatism, and classification of earnings. *Journal of Accounting Research, 37*(Supplement), 53–87.

Raonic, I., McLeay, S., & Asimakopoulos, I. (2004). The timeliness of earnings, market to book and conservatism in financial reporting. *Journal of Business Finance and Accounting, 31*, 151–165.

Roychowdhury, S., & Watts, R. L. (2007). Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting. *Journal of Accounting and Economics, 44*, 2–31.

Samsonova, A., Humphrey, C., & Kokkali, S. (2010). *Re-thinking auditor liability: The case of the European Union's regulatory reform*. Conference Paper, APRIA, Sydney.

Schwab, K., Porter, M., Sachs, J., Warner, A., & Levinson, M. (1999). *The global competitiveness report*. New York: Oxford University Press.

Shu, S. Z. (2000). Auditor resignations: Clientele effects and legal liability. *Journal of Accounting and Economics, 29*, 173–205.

Simunic, D. A., & Stein, M. T. (1996). The impact of litigation risk on audit pricing: A review of the economics and the evidence. *Auditing: A Journal of Practice and Theory, 15*(Supplement), 119–134.

Srivastava, A., & Tse, S. Y. (2010). *The contribution of delayed gain recognition to trends in conservatism: A re-examination using a new approach to measuring accounting conservatism*. SSRN eLibrary.

St. Pierre, K., & Anderson, J. (1984). An analysis of the factors associated with lawsuits against public accountants. *The Accounting Review, 59*, 242–263.

Watts, R. (2003a). Conservatism in accounting, Part I: Explanation and research implications. *Accounting Horizons, 17*, 207–221.

Watts, R. (2003b). Conservatism in accounting, Part II: Evidence and research opportunities. *Accounting Horizons, 17*, 287–301.

Watts, R. (2006). What has the invisible hand achieved? *Accounting and Business Research, 36* (Special Issue), 51–61.

Wingate, M. L. (1997). An examination of cultural influence on audit environments. *Research in Accounting Regulation, 11*(Supplement), 129–148.

Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting in quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics, 46*, 240–260.