Are the Reputations of the Large Accounting Firms Really International? Evidence from the Andersen-Enron Affair

Steven F. Cahan, David Emanuel, and Jerry Sun

SUMMARY: This paper investigates the stock price reaction of Andersen's non-U.S. clients around two key dates leading up to Andersen's demise, i.e., January 10, 2002, when Andersen announced it had shredded documents related to the Enron audit, and February 4, 2002, when Enron's board released a report (the Powers report) that was critical of Andersen and when Andersen established an Independent Oversight Board to examine the firm's audit practice. We find that the cumulative abnormal return for the two dates is negative and significant which suggests that concerns about Andersen's reputation and audit quality spilled over to other countries outside the U.S. We find that the market reaction is more significant when there is a greater demand for assurance, e.g., in common law countries and firms with large changes in total accruals or with new debt or equity issues. In further analyses, we use Andersen's non-U.S. clients that are cross-listed in the U.S. to separate out possible assurance and insurance effects. When Andersen's non-U.S., cross-listed clients are compared with Andersen's U.S. clients, we find similar cumulative abnormal returns. Since this test controls for insurance exposure in the U.S. market, our results suggest a similar assurance effect whether the client is audited by Andersen's U.S. unit or one of its non-U.S. units.

Keywords: auditor reputation; international audit markets; Arthur Andersen; Enron.

INTRODUCTION

Each of the Big 4 accounting firms markets itself as a global organization. For example:

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KPMG is a global network of professional firms providing Audit, Tax, and Advisory services. We operate in 145 countries and have more than 123,000 professionals working in member firms around the world ... Our member firms aim to provide clients with a globally consistent set of multidisciplinary financial and accounting services, based on deep industry knowledge. (KPMG website)

Every day our more than 146,000 people in 150 countries go to work to help our clients succeed. From Dublin to Durban, from Minneapolis to Manila, our job is channeling knowledge and value through our lines of service and 22 industry-specialized practices. (PricewaterhouseCoopers website)

Our 130,000 people are the foundation of our success. We assemble the right multidisciplinary team for your business, drawing on our global network of professionals. (Ernst & Young website)

With 150,000 people in over 140 countries, Deloitte member firms serve more than 80 percent of the world's largest companies as well as large national enterprises, public institutions and successful fast-growing companies. (Deloitte website)

Such statements beg the question: How global are the reputations of the leading accounting firms? Specifically, if the name brand of one of the large accounting firms is damaged in one country, does that damage spill over to other countries?

We examine this issue by looking at the impact of the Andersen-Enron affair on Andersen's non-U.S. clients. Prior research has documented that, in the U.S., Andersen's involvement raised real concerns about the financial statements of the firms that it audited. For example, Chaney and Philipich (2002) and Krishnamurthy et al. (2006) find negative abnormal returns for Andersen's U.S. clients around several Andersen-Enron event dates. They interpret the negative abnormal returns as evidence of investors' concerns about Andersen's reputation and audit quality. Barton (2005) finds that nearly 70 percent of Andersen's U.S. clients defected before Andersen was convicted of obstruction of justice in June 2002, and Cahan and Zhang (2006) find that successor auditors required more conservative accounting for their ex-Andersen clients than for their ongoing clients. Thus, there is evidence that Andersen's reputation in the U.S. did suffer.

Like the remaining Big 4, at the time of its demise, Andersen was a worldwide firm with a single operating structure, offices in 84 countries, and 77,000 employees. Of its U.S. $9.34 billion of revenue for the fiscal year ending August 31, 2001, more than half—53.8 percent—was generated outside the U.S. (Hawkins and Cohen 2003). Andersen also marketed itself as an international firm. For example, a statement on its website stated: "A Truly Global Firm—Our global partnership, communications networks, methodologies and mindset form the framework of our firm" (see Hawkins and Cohen 2003, 16). Whether investors viewed Andersen as a unified international firm with a single global reputation is an empirical question.

We examine the market reactions around two key Andersen-related event dates to assess whether Andersen clients in 38 countries outside the U.S. suffered from events involving Andersen's U.S. unit, Arthur Andersen LLP. Following Chaney and Philipich (2002) and Nelson et al. (2008), we focus on January 10, 2002, when Andersen announced it had shredded documents related to the Enron audit, and February 4, 2002, which was the first trading day after Enron's board released a report that was critical of Andersen and after the announcement by Andersen that the former Federal Reserve Board Chairman, Paul Volcker, would head up an Independent Oversight Board (IOB) to investigate Andersen's audit policies and procedures. An important and logical question is—did these events also force investors to re-evaluate the (collective) reputation of Andersen's non-U.S. units? If

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investors viewed Andersen as a single, global brand name, we expect that concerns in the U.S. would spill over to Andersen's non-U.S. clients, i.e., we would expect to find negative abnormal returns for Andersen's non-U.S. clients as well.
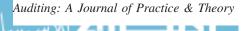
We find that the average overall cumulative abnormal return (CAR) around the January 10 and February 4 event dates is negative and significant. For the individual event dates, we find a particularly strong negative reaction around the February 4 date. Thus, the appointment of Paul Volcker to the IOB and the release of the critical Powers report may have sent a clear signal to the international community that Andersen's audit practice was in serious trouble.[1] Moreover, this evidence suggests that concerns about Andersen's U.S. unit spread to Andersen's clients outside the U.S.

Recently, Nelson et al. (2008) provide evidence that Chaney and Philipich's (2002) results are confounded by market-wide news. To address this concern, we examine whether the market reactions to Andersen's non-U.S. clients differ between common and civil law countries. If market-wide news is driving our results, we expect to find similar reactions in common and civil law countries, particularly after controlling for general differences in the value relevance of accounting information and stock price synchronicity (i.e., the degree of correlation of stock price movements in a country). However, based on La Porta et al. (1997, 1998), we argue that the value of an audit will be higher in common law countries than in civil law countries. Common law countries have wider and deeper financial markets where investors and creditors rely more heavily on audited financial statements. If auditor reputation is driving the market reaction, we expect to find a more negative reaction in common law countries. Consistent with our expectations, we find evidence that the overall CAR is significantly more negative in common law countries than in civil law countries.

To examine the issue further, we consider whether cross-sectional differences in CARs might be due to firm-level differences in the demand for assurance after controlling for legal origin. Market-wide news is likely to be driven by economy- or industry-related news and is unlikely to be directly related to the demand for assurance (e.g., Nelson et al. [2008] cite increasing oil prices as one market-wide event affecting the energy industry). On the other hand, we expect that the assurance value of an audit will be higher in firms where managers have more discretion and more incentives to manage earnings because, in these cases, there is more need for an auditor who can verify the amounts and constrain opportunism. Thus, we expect that damage to an auditor's reputation will lead to more negative market reactions when there is greater demand for assurance. We use measures related to total accruals, sales growth, and new debt and equity issues to measure accounting discretion and incentives to manage earnings at the firm level. Consistent with our expectations, we find some evidence that our assurance variables are negatively and significantly related to the firm-level CAR around the Andersen-Enron event dates.

Finally, we use the market reactions for Andersen's non-U.S. clients to help untangle the assurance and insurance roles of an audit (Dye 1993). Prior researchers using abnormal returns (e.g., Menon and Williams 1994; Chaney and Philipich 2002) find it difficult to separate the two effects because they are related, e.g., poor assurance increases the need for insurance. We compare Andersen's non-U.S. clients that are cross-listed in the U.S. with Andersen's non-U.S. clients that are not cross-listed. Since these clients are largely audited by one of Andersen's non-U.S. units, the level of assurance should be similar. However, the cross-listed clients are also exposed to a more litigious legal environment in

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[1] The Powers report was prepared by a special investigative committee of the Enron board headed by William C. Powers. The report cited a lack of ''forceful and effective'' oversight by Enron executives but also criticized Andersen for not providing ''objective and critical professional advice'' (Powers et al. 2002, 17).

the U.S. We find that the CARs for Andersen's non-U.S., cross-listed clients are significantly more negative than the CARs for Andersen's non-U.S. clients that are not cross-listed. We suggest that the more negative returns for the non-U.S., cross-listed firms reflect a decrease in the value of the insurance option, as Andersen's role of an insurer in the U.S. market was called into question as the Andersen-Enron crisis worsened.

The remainder of the paper is divided into four more sections. The second section provides background on Andersen's worldwide operations and structure, reviews the relevant literature, and develops hypotheses. The third section discusses the research design and sample. The fourth section provides the results, and the last section contains a summary and concluding remarks.

BACKGROUND AND HYPOTHESES
Andersen Outside the U.S.

Prior to its demise, Andersen operated in 84 countries. Of its worldwide revenues of $9.34 billion, $4.49 billion came from North America, $2.87 billion from Western Europe, $1.2 billion from Asia/Pacific, $400 million from Latin America, and $390 million from Central Europe, the Mideast, India, and Africa (*Wall Street Journal* 2002b).

Levitt (1983, 92–93) identifies global firms as firms that operate ''as if the entire world (or major regions of it) were a single entity; it sells the same things in the same way everywhere.'' Global firms lead to global brands, and Holt et al. (2004) find that the most frequent reason why global brands are used by consumers is because they serve as a signal for high quality.

Because auditing is a credence good, investors rely on the auditor's reputation in assessing the credibility of audited financial statements (e.g., Firth 1990). Since there is a demand for high-quality audits, at least some auditors will have incentives to build a reputation as a high-quality auditor. DeAngelo (1981) theorizes that large auditors will provide higher quality audits because they have more to lose if they compromise their independence. This also suggests that the large international accounting firms have incentives to maintain a uniform level of audit quality in all countries they operate in. Otherwise, poor audit quality in one country will likely taint the auditor's reputation in other countries. In other words, if the auditor's personnel and practices are similar across countries, investors may view the poor audit quality in one country as a signal of firm-wide deficiencies. To the contrary, if the auditor's operations are not globally integrated (i.e., largely separate from country to country), these reputation spillover effects might be reduced or eliminated.

It is clear that Andersen's worldwide operations were as integrated as any of the large accounting firms. In particular, from its inception, Andersen consistently emphasized a ''one firm'' concept that ''emphasized a unified organization across the world to provide clients with consistent service'' (Niece and Trompeter 2004, 183). The one-firm concept was operationalized in a number of ways. First, while each Andersen country office was a separate legal entity, they were all linked to Andersen Worldwide through what was known as the ''member firm interfirm agreement.'' Andersen Worldwide was a Societé Cooperative registered in Geneva that provided the umbrella organization, of which Arthur Andersen and Andersen Consulting were the two business units.[2] Under the agreement, members of the worldwide network shared revenue, technology, and strategy (*Wall Street Journal* 2002b). Second, training was highly centralized. For example, Andersen maintained a worldwide

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[2]   Andersen Consulting became a separate business unit in 1989. The Consulting partners resolved to break away from Andersen Worldwide in 1997, and the separation was completed in 2000. At that time, Arthur Andersen became Andersen.

training facility at St. Charles, Illinois. One role of the center was to ensure that staff were trained to use the same audit procedures, but another role was to develop a ''one firm'' culture (e.g., Toffler 2003). Third, there was a common worldwide accounting system, including the time and work in process system. Likewise, there was a worldwide approach to treasury management (e.g., Quick 2002). Fourth, to a degree, insurance was centralized. For example, Andersen's non-U.S. members agreed to pay $60 million in settlements arising from the failure of Enron—and it was not unusual for the Societé Cooperative to be named in lawsuits along with the national practice.[3] Fifth, profits (for the equity partners) were shared on a worldwide basis (e.g., Toffler 2003). One objective of the arrangement was to ensure that partners and firms in countries with less profitable operations received an equitable share of the worldwide income (*Wall Street Journal* 2002b).

While the one-firm approach allowed Andersen to market itself as a global firm, it also created risks. Hood (2002) writes, ''Andersen's confidence over its 'one-firm' approach will last in the minds of clients and staffers, who will wonder if alleged questionable practices extended beyond U.S. borders.'' Similarly, Victoria Taylor, a law professor at the University of Washington, commented that, ''Global companies like Arthur Andersen are all about promising a uniform quality of service ... And if they can't fulfill that promise in their home jurisdiction, everyone looks up and says this is a breach of the promise of the brand'' (see *Wall Street Journal* 2002b).

There is evidence that investors, clients, and Andersen partners outside the U.S. were troubled by Andersen's role in the Enron audit. For example, John Ormerod, the managing partner of Andersen's U.K. practice, said, ''There is no doubt Enron is a serious issue for lots of people, and it has raised a lot of questions about our firm'' (see Miller 2002). In fact, Ormerod went into damage control mode almost immediately after the shredding came to light. In January 2002, he asked U.K. audit engagement partners to reassure their clients, noting that their ''current practices and policies are robust and should not cause you or your shareholders any concern'' (see Miller 2002). In February 2002, Ormerod appeared on the BBC's Newsnight program to defend the firm. Even so, Miller (2002) writes that Andersen was likely to lose some audit work in the U.K. ''as a result of the Enron affair.'' Further, the *Wall Street Journal* (2002c) reports that the Andersen-Enron scandal was seen as helping push the European Union toward tighter accounting regulations.

Thus, Andersen's signature on an audit report was an international indicator of its quality and reputation, and we use the Andersen-Enron affair to examine a more general research question, i.e., whether the reputations of the largest audit firms are international. Of course, it is possible that there may be no spillover effect. Organizational or country-level institutional factors could create barriers that make auditor reputation largely country specific. For example, the accounting profession is generally regulated at the country level (e.g., there are country-specific entry and licensing requirements), and prior research suggests that an auditor's reputation can even be local (e.g., Ferguson et al. 2003; Francis et al. 2005). Our objective is not to rule out the existence of national or local reputations but, rather, is to consider whether an auditor's reputation can also contain an international component.

Whether Andersen's worldwide reputation was impaired by its U.S. practice's involvement with Enron is an empirical question. We examine the price reaction for non-U.S.

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[3] For example, Department 56, Inc., a U.S. firm, sued Arthur Andersen LLP and Andersen Worldwide Société for $1 billion in a suit filed on March 1, 2001 (Bryan-Low 2002). Steve Berman, a lawyer representing Enron employees, said he planned to sue Andersen Worldwide in addition to the U.S. practice (*Wall Street Journal* 2002a).

Andersen clients around two key dates: (1) January 10, 2002, when Andersen notified the SEC, the Department of Justice, and Congress that it had shredded a significant number of Enron-related documents, and (2) February 4, 2002, the first trading day after Andersen established an Independent Oversight Board (IOB) to be headed by Paul Volcker, the former chairman of the Federal Reserve Board, and after the board of Enron released the Powers report which was highly critical of Andersen's role as Enron's auditor. The shredding is significant because it exposed Andersen to criminal charges. The appointment of Volcker is significant because it represented an admission that Andersen's U.S. practice needed to be fixed. At the time, Andersen CEO Joe Berardino said, ''We want to improve our standing in the public's mind, and we want to improve the quality of our auditing'' (see Weil 2002, A8). The Powers report is significant because, as the *Wall Street Journal* observed, it was ''blistering'' and ''accused Andersen of failing to perform its professional duties as the auditor'' (Weil 2002, A8).

If Andersen was a global brand, these events could have raised concerns about Andersen's non-U.S. clients, and these concerns could have led to lower than expected returns for these firms. The rationale for a negative price reaction is as follows. High audit quality can lead to more credible financial statements (e.g., DeAngelo 1981) as high-quality auditors are more likely to assess risks properly, detect financial reporting errors and irregularities where they exist, and in general conduct better-planned and more effective audits. High-quality auditors are also expected to intervene and insist upon compliance with GAAP if managers engage in overly aggressive accounting. For example, Becker et al. (1998) and Francis et al. (1999) find that high-quality auditors are better at constraining management's use of opportunistic earnings management.

Since the quality of the auditor is priced into the client's share price (e.g., Teoh and Wong 1993), if investors lower their assessment of audit quality, the share price would be adjusted downward. This is because lower audit quality increases uncertainty about the quality of information, i.e., it can increase information asymmetry and information risk.[4] Thus, in our first analysis, we consider the question: Did Andersen's non-U.S. clients suffer from events related to the Andersen-Enron affair? Formally, we test the following hypothesis:

H1: CARs for Andersen's non-U.S. clients around the January 10, 2002 and February 4, 2002 event dates are negative.

Legal Systems and Demand for Auditing

Nelson et al. (2008) find that Chaney and Philipich's (2002) results are confounded by market-wide news. If so, any test for an international market reaction might also be confounded by the same market-wide news. To differentiate between a reputation effect and market-wide news, we examine whether the market reaction around January 10 and February 4 differs based on a country's legal regime. Prior research suggests that U.S. and non-U.S. firms are affected by common or market-wide economic news (e.g., Eun and Shim 1989; Hamao et al. 1990). If market-wide news is driving the market reaction, we would expect to find similar market reactions for non-U.S. Andersen clients regardless of the country, particularly after controlling for general differences in the value relevance of accounting information and stock price synchronicity (i.e., the correlation of stock price movements in a country). On the other hand, if reputation is driving the results, the market reaction should be more negative where the demand for audit quality is greater.

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[4] Easley and O'Hara (2004) argue that information risk is not fully diversifiable.

Based on La Porta et al. (1997, 1998) and others, we expect that the importance of auditor reputation will be higher in common law countries than in civil law countries. Because ownership is more dispersed in common law countries, agency problems between owners and managers are more likely to exist in those environments. This creates a demand for timely and transparent financial reports in common law countries so that owners can monitor the managers' performance (e.g., Ball et al. 2000). Further, owners will price protect their investments if they believe the financial statements contain errors or are biased. This gives firms an incentive to have their financial statements audited as auditors can verify accounting data and constrain managerial opportunism. This leads to more credible financial statements and a lower cost of capital (e.g., Francis et al. 2003). On the other hand, in civil law countries where markets are less deep and where investor protection is weaker, ownership is more concentrated (La Porta et al. 1999). Consequently, in civil law countries, information asymmetry will be less of an issue, and opaqueness can even benefit the owners by allowing them to protect their private control benefits and to seek political rents (e.g., Ball et al. 2003; Fan and Wong 2005).

Several studies find evidence of higher quality accounting information in common law countries or where investor protection is high. For example, Doupnik and Salter (1995) report that common law countries have higher disclosure scores than civil law countries, and Jaggi and Low (2000) show that these results also hold at the individual firm level. Ball et al. (2000) find that accounting information is more timely and conservative and Hung (2001) finds that accrual accounting is more value relevant in common law countries. Leuz et al. (2003) find less earnings management when shareholder protection is high. Also, there is evidence that auditing is more important in common law countries. Francis et al. (2003) find that, in common law countries, more is spent on auditing, and market shares for Big 5 accounting firms are larger, which suggests a more important role for auditing in these countries.

Thus, we expect that auditor reputation will be more important in common law countries. If auditor reputation effects, rather than market-wide news, are driving the market reaction, we expect to find more negative market reactions around the Andersen-Enron events in common law countries. More formally, we hypothesize:

H2: CARs for Andersen's non-U.S. clients are more negative for clients located in common law countries than for clients located in civil law countries.

Firm's Demand for Assurance

To further rule out a market-wide news explanation, we examine why the market reaction might differ between firms within a country. If market-wide news is driving the market reaction, we would expect to see similar market reactions across firms in the same country; however, if Andersen's damaged reputation is driving the results, we would expect to see more negative market reactions for firms that have a greater need for assurance.

Traditionally, the need for an audit arose because users needed assurance about the quality of financial statements (e.g., Watts and Zimmerman 1983), and prior research suggests that the demand for assurance is driven by information asymmetry and agency conflicts (e.g., Dopuch and Simunic 1980; Watts and Zimmerman 1986; Healy and Palepu 2001). A higher quality audit implies a higher level of assurance; thus, if the auditor's reputation is damaged, the assurance value of that auditor's audits will be reduced (e.g., Barton 2005). Thus, if auditor reputation is driving the market reaction, firms that rely more on auditor reputation would be expected to have more negative CARs when their auditor's reputation is damaged. Drawing on prior research (e.g., DeAngelo 1981; Smith and Watts

1992; Shivakumar 2000), we expect that firms with larger accruals, faster growth, and making new issues of equity or debt will have greater demand for credible financial statements. We test the following hypothesis:

   H3:   After controlling for legal origin, CARs for Andersen's non-U.S. clients are more negative when the demand for assurance is high.

Insurance Value of an Audit

As Dye's (1993) analysis suggests, an audit may also have insurance value. One way to view this insurance component of an audit is that the auditor has written a put option that the investor might exercise if there is an audit failure. The value of this option depends on the probability that a lawsuit will be filed, the probability that it will be successful, and expected damages that would be awarded if it is successful. Prior research has focused on the third aspect, i.e., a negative or ''deep pockets'' insurance effect. For example, Menon and Williams (1994) view the negative CARs for clients of Laventhol and Horwath as evidence that the value of the insurance option was severely reduced by Laventhol and Horwath's inability to pay for claims made against it. Studies examining the insurance effect are generally based in the U.S., but several studies such as Baginski et al. (2002), Seetharaman et al. (2002), Khurana and Raman (2004), and Choi et al. (2008) exploit differences in litigation risk between the U.S. and other countries in their research designs. For example, Seetharaman et al. (2002) find that lower litigation risk outside the U.S. leads to lower audit fees. Thus, we expect the insurance component will be relatively less important in explaining the market reaction outside the U.S. than inside the U.S.

While insurance is unlikely to explain the market reactions for Andersen's non-U.S. clients generally, it is possible that it may affect the market reactions for Andersen's non-U.S. clients that are also cross-listed in the U.S. Thus, we also compare the CARs for these two groups. Specifically, we expect that the assurance value will be relatively constant across the two groups because we hold the reputation and audit quality of Andersen's non-U.S. units constant (since both groups are mainly audited by one of Andersen's non-U.S. units). On the other hand, the insurance value differs for the cross-listed and non-cross-listed firms since the former were exposed to the U.S. security laws, listing rules, and litigation environment more generally. This suggests that any difference in the CARs will, at least partly, reflect a reduction in the insurance value of Andersen's non-U.S., cross-listed clients relative to its non-U.S., non-cross-listed clients.

We consider a final hypothesis:

   H4:   CARs for Andersen's cross-listed, non-U.S. clients are more negative than CARs for Andersen's non-cross-listed, non-U.S. clients.

RESEARCH DESIGN

Analysis 1

We estimate the CARs around January 10, 2002 and February 4, 2002 by first estimating the market model:

$$R_{ijt} = \alpha_{ij} + \beta_{ij}R_{mjt} + \varepsilon_{ij} \tag{1}$$

where R_{ijt} is the return for client i in country j on day t and R_{mjt} is the return on the market index for country j. We estimate Equation (1) using 200 trading days prior to each event

where we delete trading days in a 5-day window around prior events.[5] Using the estimated parameters from Equation (1), we compute the abnormal return for each day, and we compute the CAR by accumulating the abnormal returns in 2- to 5-day window periods around each event date. Similar to Chaney and Philipich (2002), we test the significance of the CARs using a corrected Z-test based on Mikkelson and Partch (1988) and a generalized sign test.[6] We also compute an overall CAR by combining the CARs from the two event dates.

Analysis 2

To test H2, we examine whether the CARs will be more negative for Andersen clients located in common law countries than for Andersen clients located in civil law countries. We examine the difference for the overall CAR and for each of the event dates using t-tests and Wilcoxon rank sum tests. Based on La Porta et al. (1998), we classify eleven countries as common law countries, i.e., Australia, Canada, Hong Kong, India, Ireland, Israel, Malaysia, New Zealand, Singapore, South Africa, and the U.K. We classify the remaining 27 countries in our sample as civil law countries.

Next, we examine the effect of legal environment on the overall CARs using country-level regressions. We use an indicator variable for legal origin, *LEGAL*, that is coded 1 for common law countries. However, prior research (e.g., Ali and Hwang 2000) suggests that equity investors may not rely on financial reports to the same extent in every country. If so, our CARs may be capturing cross-country differences in the value relevance of accounting numbers rather than differences in investors' concerns about the Andersen-Enron events per se. Ali and Hwang (2000) find that the value relevance of accounting numbers varies with orientation of a country's financial system (i.e., bank-oriented or market-oriented) and the country's accounting model. Thus, we attempt to control for these factors.

We use *BANK* from Bushman and Piotroski (2006, Appendix B) which is an indicator variable that reflects whether a country's ratio of deposit money bank assets to market capitalization is high ($= 1$) or low ($= 0$). If accounting numbers are more value relevant when the level of equity financing is high (i.e., greater market orientation), we expect to see a positive relation between *BANK* and the overall CAR.

We use the country's CIFAR rating to capture characteristics of the accounting model. These ratings are based on CIFAR's assessment of 85 annual report disclosure items where a higher rating indicates better and more extensive disclosures. Bushman and Smith (2001, 312) note that the CIFAR ratings are an ''obvious candidate for the quality of the financial accounting regime,'' and the CIFAR rating has been widely used in prior accounting and financial economics literatures (e.g., La Porta et al. 1997; Rajan and Zingales 1998; Hope 2003). Hope (2003) provides a detailed discussion and examines the validity of the ratings. We obtain CIFAR ratings from Bushman et al. (2004), and we expect a positive association between *CIFAR* and the overall CAR if high-quality accounting is more value relevant.

Additionally, it is possible that our CARs might be related to the degree of synchronicity of stocks in a country. That is, the synchronicity, or degree of correlation of stock

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[5] We also estimate the market model over a fixed 200-day period before the first event period. The results are similar to those reported in the fourth section.

[6] The corrected Z-test, like a t-test, focuses on the magnitude of the CARs while the generalized sign test focuses on the distribution of the CARs. The generalized sign test compares the distribution of positive and negative CARs in the test period with the distribution of positive and negative CARs in the estimation period. Following Chaney and Philipich (2002), we assume the proportions will be the same. However, we note that neither the market model or market efficiency requires the proportion of positive and negative CARs to be equal in the estimation and test periods.

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price movements in a country, differs between countries (Morck et al. 2000). At an extreme, if the prices of all stocks in a country move exactly together (i.e., if synchronicity equals 1), it would not be possible to identify abnormal returns since the market's reaction will be included in the market index and will appear to be "normal." To control for this possibility, we include a measure of stock market synchronicity (*SYNCHRON*) from Morck et al. (2000, Table 2) where high values indicate more synchronicity. If differences in cross-country CARs merely reflect differences in synchronicity, *SYNCHRON* would have a positive coefficient.

Thus, we estimate the following regression model:

$$CAR2\_C = \beta_0 + \beta_1 LEGAL + \beta_2 BANK + \beta_3 CIFAR + \beta_4 SYNCHRON + \varepsilon \qquad (2)$$

where *CAR2_C* is the mean CAR for the two events for country *j* and where the other variables are country-level measures as defined in the Appendix.

Analysis 3

To test H3, we use firm-level variables for assurance while controlling for legal origin or country-level fixed effects. We use three variables to proxy for the demand for assurance which depends on the manager's accounting discretion and incentives to manage earnings. First, based on DeAngelo (1981), we use the change in total accruals (*CHG_TAC*).[7] Because Kim et al. (2003) show that auditors are more likely to constrain managers' accounting discretion when managers engage in upward earnings management, we use the signed change in total accruals. Second, managers in growth firms have more discretion (Smith and Watts 1992) and more incentive to manage earnings to meet earnings forecasts (Skinner and Sloan 2002). Because Chaney and Philipich (2002) find U.S. firms with more sales growth had lower CARs around the January 10 and February 4 event dates, we include the one-year growth in sales from 2000 to 2001 (*GROWTH*). Third, managers have incentives to manage earnings upward before new equity and debt issues (e.g., Shivakumar 2000). Thus, we use the value of new shares or new debt issued divided by total assets to measure these incentives (*NEW_ISSUE*).[8]

We also include control variables for the volatility of stock returns (*VOLATILITY*) since greater volatility suggests more extreme stock price movements and greater abnormal returns. We measure volatility using the standard deviation of returns over 200 days before November 5, 2001.[9] We also control for firm size (*SIZE*) using the natural log of the market value of equity. Thus, we estimate the following regression model:

$$\begin{aligned} CAR2\_F = {} & \beta_0 + \beta_1 LEGAL + \beta_2 CHG\_TAC + \beta_3 GROWTH \\ & + \beta_4 NEW\_ISSUE + \beta_5 VOLATILITY + \beta_6 SIZE + \varepsilon \end{aligned} \qquad (3)$$

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[7] Specifically, because the number of firms within an industry is small in Compustat Global for many countries, we do not estimate cross-sectional Jones models.

[8] Heron and Lie (2004) find that accruals increase only when the equity issue includes primary shares. Thus, rights issues (where existing shareholders are offered shares on a pro-rata basis) may not elicit the same incentives to manage earnings. Because we collect data for *NEW_ISSUE* from Compustat, we are unable to determine the exact form of the new issue. While this will introduce noise into our measure, this noise would bias our tests against finding a significant coefficient for *NEW_ISSUE*.

[9] We compute volatility before November 5, 2001 because November 5 was the date when it was first reported that Andersen could be scrutinized for Enron's inadequate disclosure policy (see Callen and Morel 2003).

where *CAR2_F* is the overall CAR for firm *i* and all other variables are as defined in the Appendix.[10]

Analysis 4

To test H4, we identify a sample of Andersen's non-U.S. clients that are cross-listed in the U.S. We compare the overall CAR and CAR for each of the event dates for the two groups of Andersen's non-U.S. clients—i.e., U.S. cross-listed and non-U.S. cross-listed— using t-tests and Wilcoxon rank sum tests.

Sample

We search the Compustat Global Vantage database and the Canadian portion of Compustat's North American database for firms that were audited by Andersen in 2001. This process yields 687 non-U.S. Andersen clients from 41 countries where firms are classified based on the country of their main stock listing. We use Datastream to collect share price data and delete 166 clients that do not have share price data available. Thus for Analysis 1, our sample consists of 521 Andersen clients from 38 countries. For Analysis 2, which involves country-level regressions, we use all countries with the requisite data. Depending on the exact test, we have between 26 and 30 countries. For Analysis 3 which involves firm-level regressions, our sample is composed of 375 firms that have all the required data. For Analysis 4, we use Compustat to identify Andersen's non-U.S. clients that are cross-listed in the U.S. We use 99 Andersen non-U.S., cross-listed clients for this analysis.

Table 1 provides a breakdown of the sample by country. Table 1 also provides the median market value of equity (MVE) of sample firms and of all Compustat firms by country. In 13 countries (203 firms), the median MVE for sample firms is less than the median country MVE. In 24 countries (317 firms), the median MVE for the sample is larger than the median country MVE, and in one country (1 firm), the sample and country MVEs are the same. Thus, there may be some bias toward larger firms, but this bias does not appear to be acute.

RESULTS

Results for Analysis 1

Table 2 presents overall results for CARs for various time periods around the event dates for 521 non-U.S. Andersen clients. For many countries, the announcement date is effectively day +1 because of time zone differences. We provide the CARs for four different window periods for each of the two events, and we report the results of corrected Z-tests based on Mikkelson and Partch (1988) and generalized sign tests. Table 2 also provides results for the overall CAR for the two event dates combined.

For the individual events (Table 2, Panels A and B), we find strong evidence of negative abnormal returns for the February 4 date with seven of the eight test statistics in Panel B being significant. Thus, it appears that the hiring of Paul Volcker to head the IOB and the release of the Powers report emphasized the seriousness of Andersen's errors in the Enron audit and may have made investors outside the U.S. question the credibility of Andersen's audits, even if those audits were conducted by a foreign unit of Andersen. On the other hand, we only find limited evidence of significant negative abnormal returns for the non-U.S. clients around January 10. While this suggests that, in general, investors outside

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[10] We winsorize all continuous variables at the 1 and 99 percentiles.

TABLE 1
Sample Firms and Market Data by Country

Country	Firms in Sample		All Firms Available on Compustat	Total Stock Market Capitalization (U.S.$ Billions)
	Number	Median Firm MVE (U.S.$ Millions)	Median Firm MVE (U.S.$ Millions)	
Argentina	3	148.67	424.26	33.38
Australia	29	118.25	90.95	375.59
Austria	1	2117.28	74.98	25.20
Belgium	7	32.5	141.27	136.48
Brazil	20	191.09	190.45	186.24
Canada	31	78.95	180.98	611.50
Chile	12	462.74	138.97	56.22
China	3	891.57	148.02	525.84
Czech Republic	2	884.41	119.73	7.68
Denmark	4	99.4	53.29	85.14
Finland	1	1.71	85.49	190.45
France	4	36372.81	73.58	1066.65
Germany	43	51.41	61.13	1071.72
Greece	4	531.22	303.45	83.48
Hong Kong	33	53.75	53.76	506.07
Hungary	1	361.78	111.28	10.37
Indonesia	7	38.74	13.4	23.92
India	6	197.13	50.8	221.66
Ireland	4	69.99	193.61	75.30
Israel	2	1510.32	393.3	58.23
Italy	17	153.25	206.49	527.45
Lithuania	1	164.69	164.69	1.14
Luxemburg	1	1795.91	397.67	23.78
Malaysia	50	26.18	32.24	118.98
Mexico	4	1210.15	392.65	126.26
The Netherlands	6	913.1	138.1	552.46
New Zealand	2	975.81	69.06	17.74
Norway	25	171.26	65.5	69.44
Poland	2	4188.62	105.5	26.16
Russia	1	440.93	1209.96	85.69
Singapore	26	43.92	35.53	117.34
Spain	36	587.21	348.48	394.52
Sweden	17	91.34	47.88	236.51
Switzerland	7	73.85	232.56	625.91
Taiwan	23	262.68	249.7	292.88
Turkey	2	58.68	228.26	68.60
South Africa	4	217.5	225.84	84.35
United Kingdom	80	186.56	124.99	2164.73
Total	521			

TABLE 2
Mean Cumulative Abnormal Returns for Andersen's Non-U.S. Clients

Panel A: January 10, 2002: Andersen Announces Documents were Shredded

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	0.25%	2.016	260	261	−0.044
(0, +2)	0.30%	1.391	255	266	−0.482
(0, +3)	−0.15%	−1.067	241	280	−1.709**
(−1, +3)	0.29%	0.490	242	279	−1.621*

Panel B: February 4, 2002: Andersen Hires Paul Volcker to Head the IOB and Powers Report Released

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	−0.87%	−3.322***	237	284	−2.059**
(0, +2)	−0.53%	−1.545*	249	272	−1.008
(0, +3)	−0.97%	−2.673***	246	275	−1.271*
(−1, +3)	−0.85%	−1.760**	243	278	−1.533*

Panel C: Two-Event CAR

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	−0.63%	−2.112**	249	272	−1.008
(0, +2)	−0.22%	−0.634	241	280	−1.709**
(0, +3)	−1.13%	−2.825***	213	308	−4.162***
(−1, +3)	−0.56%	−1.369*	227	294	−2.935***

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests. CARs are for 521 non-U.S. Andersen clients. CARs are estimated using parameters from the market model estimated over 200-day rolling periods before each window period. The test statistics in Panels A–C are based on corrected Z-statistics based on Mikkelson and Partch (1988) and generalized sign Z-statistics.

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the U.S. reacted more slowly to Andersen's problems than in the U.S., we caution that this does not mean that investors did not have any concerns about Andersen's non-U.S. clients. Our later analysis (Analysis 3) shows more negative returns around January 10 for non-U.S. clients that had a greater need for assurance.

We also find evidence that the overall CAR is negative and significant. In Table 2, Panel C, the overall two-event CAR is −1.13 percent for the (0, +3) window and −0.56 percent for the (−1, +3) window. Together, six of the eight tests' statistics reported in Panel C are significant. This provides evidence that events affecting Andersen's U.S. partnership had spillover effects for Andersen's non-U.S. clients which is interesting in its own right. Overall, the evidence in Table 2, particularly for February 4 and the overall CAR, supports H1.

To get a sense of how the magnitude of the non-U.S. CARs compares with the U.S. CARs, we collect data for 895 U.S. Andersen clients (i.e., all clients with sufficient data) and repeat our analysis. For the U.S. firms, we find CARs for the (−1, +3) window of −1.32 percent and −1.79 percent for January 10 and February 4 events, respectively, and

−3.11 percent for the two-event CAR with all three CARs being significantly different from zero.[11,12] Thus, the reactions of the non-U.S. clients are not as negative as the U.S. clients. For example, the two-event CAR for the non-U.S. clients is roughly one-sixth of the magnitude of the two-event CAR for the U.S. clients. The difference may partly reflect the insurance value of an audit which is higher in the U.S. where litigation is more frequent and costly. Also, it may reflect a national reputation component. Even if there is an international component to an auditor's reputation, there could be national, and local, elements to reputation as well.[13]

Results for Analysis 2

Hypothesis 2 examines whether CARs for firms located in common law countries will be more negative than CARs for firms located in civil law countries. Table 3, column 1 summarizes the results, for the overall CAR and by event date, using the $(-1, +3)$ window period. There are 267 firms from 11 common law countries (Australia, Canada, Hong Kong, India, Ireland, Israel, Malaysia, New Zealand, Singapore, South Africa, and the U.K.), and 254 firms from 27 civil law countries.

We examine the two dates individually and on an overall basis. On both dates, the CARs for the common law countries are less than for the civil law countries based on a Wilcoxon rank sum test, but not on a t-test. However, for the overall, two-event CAR, we find that CARs for the clients in common law countries are statistically more negative than CARs for clients in civil law countries based on both tests. Combined, this suggests that the Andersen events were more damaging to firms located in common law countries. This is consistent with the view that audits are valued more highly in common law countries and supports H2.[14]

Since the U.S. is also a common law country, an ancillary issue is whether the responses of Andersen's U.S. clients differ from the responses of Andersen's non-U.S. clients located in common law countries. Based on H2, we expect to find lower CARs for Andersen's U.S. clients than for Andersen's non-U.S. civil law based clients. Likewise, we also consider whether the U.S. Andersen client's CARs differ from the CARs of Andersen's non-U.S. clients located in common law countries. If the market in the U.S. reacted to a loss in insurance value or if there is a national component to a large auditor's reputation, CARs

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[11] For comparison, Chaney and Philipich (2002) report CARs for the $(-1, +3)$ window of −2.10 percent and −1.53 percent for January 10 and February 4, respectively, and their overall 2-event CAR for the $(-1, +3)$ window is −3.63 percent. Thus, CARs for our benchmark sample of 895 U.S. clients are similar to CARs for their smaller U.S. sample.

[12] We also examine the CARs for U.S. firms around March 14, 2002, when Andersen was indicted. While Krishnamurthy et al. (2006) find significant negative returns around this date, for our sample of 895 U.S. firms, we find a CAR of 0.06 percent which is not significant. Thus, unlike January 10 and February 4 where we are able to replicate Chaney and Philipich's (2002) findings, we are unable to replicate Krishnamurthy et al.'s (2006) results using our U.S. sample. Accordingly, we did not include March 14 in our main analysis. However, using a three-event CAR that includes March 14 does not qualitatively change our results.

[13] One possible concern with our Table 2 results is that some Andersen clients will be included in the market index. Similar to the synchronicity issue discussed above, this could make it more difficult to detect abnormal returns. To address this concern, we recomputed the market index for each country with the Andersen clients excluded and re-estimated the CARs. Using the adjusted market index, our results are qualitatively unchanged.

[14] We also examined legal origin using La Porta et al.'s (1998) four-way classification where civil law countries are further subdivided into German civil law, Scandinavian civil law, and French civil law. They argue that legal protection of shareholders will be the strongest in common law countries and the weakest in French civil law countries, with German and Scandinavian civil law countries falling in between. We find that the CARs in common law countries are significantly more negative than the CARs in Scandinavian civil law countries and the CARs in French civil law countries while the CARs in German civil law countries are not significantly different from the CARs in common law countries.

TABLE 3
Differences in Mean Cumulative Abnormal Returns for (−1, +3) Window Period

Panel A: January 10, 2002: Andersen Announces Documents were Shredded

Legal System	n	CAR	(1) Common Law Compared to Civil Law		(2) Common/Civil Law Compared to U.S. Andersen Clients		U.S. CAR
			t-statistic	Wilcoxon Z	t-statistic	Wilcoxon Z	
Common	267	−0.05%			2.081**	1.540*	−1.32%
Civil	254	0.65%	−0.986	−2.371***	3.466***	4.469***	

Panel B: February 4, 2002: Andersen Hires Paul Volcker to Head IOB and Powers Report Released

Legal System	n	CAR	(1) Common Law Compared to Civil Law		(2) Common/Civil Law Compared to U.S. Andersen Clients		U.S. CAR
			t-statistic	Wilcoxon Z	t-statistic	Wilcoxon Z	
Common	267	−1.23%			0.961	0.671	−1.79%
Civil	254	−0.46%	−1.200	−1.659*	2.336***	2.246***	

Panel C: Two-Event CAR

Legal System	n	CAR	(1) Common Law Compared to Civil Law		(2) Common/Civil Law Compared to U.S. Andersen Clients		U.S. CAR
			t-statistic	Wilcoxon Z	t-statistic	Wilcoxon Z	
Common	267	−1.28%			2.261**	1.491*	−3.11%
Civil	254	0.19%	−1.610*	−2.385***	4.780***	4.177***	

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests. CARs are estimated using parameters from the market model estimated over 200-day rolling periods before each window period. In column (1), t-tests and Wilcoxon rank sum tests compare Andersen's common and civil law clients. Negative t- or Z-statistics indicate that CARs for the common law sample are lower than for the civil law sample. In column (2), t-tests and Wilcoxon rank sum tests compare Andersen's U.S. and common law clients (first row in each panel) or Andersen's U.S. and civil law clients (second row in each panel). Positive t- or Z-statistics indicate that CARs for the U.S. sample are lower than for the comparison sample. The U.S. CARs are based on 895 U.S. clients of Andersen (all U.S. clients with sufficient data).

for Andersen's U.S. clients could be more negative than CARs for Andersen's non-U.S. common law based clients.

Table 3, column 2 provides these results. As expected, we find strong evidence that CARs for clients in the civil law countries are significantly higher (i.e., less negative) than the CARs for U.S. clients. This holds for both individual event dates as well as the combined CAR. For the comparisons involving the non-U.S. common law clients, we find that the mean CAR around the January 10 date for the non-U.S. common law clients (−0.05 percent) is significantly higher than the mean CAR for the U.S. clients (−1.32 percent). This is consistent with Table 2 that shows relatively little price reaction on January 10 for

the non-U.S. clients. On the other hand, for the February 4 event, we do not find a significant difference between the CARs for the two groups of common law clients (non-U.S. versus U.S.). While the January 10 and February 4 findings appear inconsistent, our later results suggest that the difference arises because the events raised different types of concerns. The shredding event appears to have raised concerns about specific types of clients while the February 4 date raised more general concerns that affected Andersen's non-U.S. clients more or less equally.

We also use country-level regressions to test H2. In particular, we regress the mean CAR (*CAR2_C*) for each country on a dummy variable for legal origin (*LEGAL*) and control country-level variables for the importance of bank financing (*BANK*), quality of the accounting regime (*CIFAR*), and stock market synchronicity (*SYNCHRON*). Table 4, Panel A provides descriptive statistics for the three control variables, and Table 4, Panel B shows the correlations for the control variables. We do not have data for the control variables for all countries so the number of countries used for these correlations varies between 25 and 30. The highest correlation among the control variables is between *CIFAR* and *SYNCHRON* ($r = -0.448$, $p < 0.01$) while *BANK* and *CIFAR* are also significantly correlated.

TABLE 4
Country-Level Analysis

Panel A: Descriptive Statistics for Country-Level Control Variables

Variable	n	Mean	Std. Dev.	Median	Minimum	Maximum
BANK	30	0.500	0.509	0.500	0.000	1.000
CIFAR	30	72.630	8.327	74.500	56.000	85.000
SYNCHRON	25	0.176	0.113	0.148	0.058	0.453

Panel B: Correlation Matrix for Country-Level Control Variables

	BANK	*CIFAR*
CIFAR	−0.386**	
	29	
SYNCHRON	−0.043	−0.448**
	27	27

Panel C: Country-Level Regressions

	LEGAL	*BANK*	*CIFAR*	*SYNCHRON*		
Prediction	**−**	**+**	**+**	**+**	**R²**	**n**
	−0.037**	−0.026			20.8	30
	(−2.296)	(−1.680)				
	−0.037**		0.001		14.1	30
	(−2.095)		(0.668)			
	−0.034**			0.017	7.3	30
	(−1.974)			(0.228)		
	−0.041**	−0.026	0.001	0.030	21.2	26
	(−2.053)	(−1.364)	(−0.446)	(0.297)		

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests. Tests are one-sided where a sign is predicted.
In Panel B, correlations are Spearman correlations. In Panel C, the dependent variable is the mean overall CAR from the $(-1, +3)$ window periods measured around the January 10, 2002 and February 4, 2002 event dates for all sample firms in country *j*. Constants are not shown. Variables are as defined in the Appendix.

Table 4, Panel C provides the results of regressing the mean overall (two-event) CAR for each country against *LEGAL* and the control variables. We estimate several models with different combinations of these variables. Given the small sample size, we first estimate models with one control variable included at a time. The first model in Panel C includes *LEGAL* and *BANK*. Consistent with our univariate results *LEGAL* has a negative and significant coefficient which indicates that the mean overall CAR is lower in common law countries. We also find that *BANK* is insignificant based on a one-tailed test which is inconsistent with less value relevant accounting numbers in bank-oriented countries once legal origin is controlled for. We find similar results for *LEGAL* when *CIFAR* and *SYNCHRON* are used in place of *BANK*. The R^2 for these three models ranges from 7.3 percent to 20.8 percent. We also estimate a full model where all three control variables are included together. Again, we find a negative and significant coefficient for *LEGAL*. This model has an R^2 of 21.2 percent. Jointly, the results for *LEGAL* provide support for H2 when country-level data are used, i.e., we find more negative CARs in common law countries after controlling for factors affecting the inherent value relevance of accounting information.[15]

Results for Analysis 3

To test H3, we use firm-level data for 375 firms to estimate Equation (3) where the dependent variable is the firm-level CAR (whereas the dependent variable for Equation (2) is the mean CAR for each country). In Analysis 3, we examine whether the CARs vary with the demand for assurance after controlling for legal origin or for country-level fixed effects.

As discussed in the third section, we use three variables (*CHG_TAC*, *GROWTH*, *NEW_ISSUE*) to measure the assurance effect at the firm level. For each of these variables, we expect a negative coefficient. Companies with more accounting discretion or more incentives to manage earnings require more assurance which suggests that the audit will be more valuable in these cases. This suggests that the audit will be priced more highly when the demand for assurance at the firm level is high (assuming a high quality auditor). If the auditor's reputation is damaged, the assurance value of the audit will be discounted, leading to a downward adjustment in price.

Table 5, Panels A and B provide descriptive statistics and correlations for the firm-level assurance variables and for the two control variables (*SIZE*, *VOLATILITY*). The highest correlation is between *SIZE* and *VOLATILITY* ($r = -0.469$, $p < 0.001$). Other high correlations are 0.243 between *GROWTH* and *SIZE* and 0.207 between *NEW_ISSUE* and *VOLATILITY*.

Table 5, Panel C provides the results for Equation (3) where the dependent variable is *CAR2_F* for the $(-1, +3)$ window. We find that *LEGAL* is negative and significant. This is consistent with our results in Tables 3 and 4 and provides further support for the hypothesis that the market reaction will be more negative in common law-based countries. For the firm-level assurance variables, *CHG_TAC* and *NEW_ISSUE* are significant and negatively signed. Our findings suggest that when the demand for assurance at the firm level is high, damage to the auditor's reputation leads to more negative market reactions, and this provides some support for H3.

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[15] We also estimate Equation (2) using a value weighted, instead of equal weighted, measure of *CAR2_C* where each firm's CAR is weighted by its market value. The results are qualitatively similar to those reported in Table 4, Panel C. Specifically, *LEGAL* is negative and significant in all four regressions with t-statistics ranging from -2.393 to -2.674.

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TABLE 5
Firm-Level Analysis

Panel A: Descriptive Statistics

Variable	n	Mean	Std. Dev.	Median	Minimum	Maximum
CHG_TAC	375	−1.539	10.545	−0.016	−72.920	14.321
GROWTH	375	2.309	3.752	1.470	−6.550	26.070
NEW_ISSUE	375	0.082	0.162	0.005	0.000	0.860
SIZE	375	4.937	1.902	4.840	0.990	10.391
VOLATILITY	375	0.342	0.018	0.029	0.012	0.101

Panel B: Correlation Matrix

	LEGAL	CHG_TAC	GROWTH	NEW_ISSUE	SIZE
CHG_TAC	0.090*				
GROWTH	0.006	0.080*			
NEW_ISSUE	0.075	−0.027	−0.030		
SIZE	−0.096*	−0.027	0.243***	−0.070	
VOLATILITY	0.030	0.008	−0.039	0.207***	−0.469***

(*continued on next page*)

TABLE 5 (continued)

Panel C: Firm-Level Regressions

Predict:	*LEGAL* −	*CHG_TAC* −	*GROWTH* −	*NEW_ISSUE* −	*SIZE* +/−	*VOLATILITY* +/−	**Country Indicators**	**R^2**
Two-Event CAR	−0.020** (−1.991)	−0.001* (−1.357)	−0.001 (−0.505)	−0.047* (−1.479)	−0.004 (−1.217)	−0.918*** (−2.842)	Excluded	5.1
		−0.001* (−1.495)	0.000 (0.211)	−0.061** (−1.898)	−0.005* (−1.483)	−0.828 (−2.334)	Included	14.5
January 10, 2002	−0.012* (−1.539)	−0.001*** (−2.534)	−0.002** (−1.619)	−0.042** (−1.685)	−0.001 (−0.481)	0.198 (0.783)	Excluded	4.5
		−0.001*** (−2.750)	−0.002* (−1.473)	−0.059** (−2.256)	−0.003 (−1.056)	0.244 (0.877)	Included	15.1
February 4, 2002	−0.008 (−1.048)	0.000 (0.827)	0.001 (1.010)	−0.005 (−0.215)	−0.003 (−1.118)	−1.116*** (−4.589)	Excluded	6.8
		0.000 (0.826)	0.002 (1.747)	−0.005 (−0.189)	−0.002 (−0.856)	−1.092*** (−3.898)	Included	10.9

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests. Tests are one-sided where a sign is predicted.

In Panel B, correlations are Pearson correlations based on a sample of 375. In Panel C, the dependent variable is the overall CAR from the (−1, +3) window periods measured around January 10, 2002, and February 4, 2002 event dates for each firm *i*. Constants are not shown. Variables are as defined in the Appendix.

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We also re-estimate Equation (3) using the CARs from the individual events as the dependent variable. These results are also in Table 5, Panel C. For the January 10 date, we find support for H3 as all three assurance variables—*CHG_TAC*, *GROWTH*, and *NEW_ISSUE*—are negatively and significantly related to the market reaction. Also, for January 10, *LEGAL* continues to be significant and negatively signed. For February 4, neither *LEGAL* nor the assurance variables is significant. In conjunction with the negative and significant CARs for February 4 in Table 2, Panel B, this result suggests that while the market reacted negatively to the February 4 events, the bad news about Andersen affected Andersen's non-U.S. clients more or less equally. On the other hand, the reaction around January 10 appears to have been more selective with clients in common law countries and clients with a high demand for assurance being affected the most.

Since *LEGAL* is not the main variable of interest in Equation (3), we also estimate Equation (3) after omitting *LEGAL* and replace it with country-level indicator variables. This allows us to control for country-level fixed effects. Table 5, Panel C also contains the results from these models. Our results are similar to the model with *LEGAL* included as we find significant coefficients for *CHG_TAC* and *NEW_ISSUE* for the combined CAR and January 10 CAR models. For January 10, we find support for *GROWTH* which is also consistent with the original model. For all three models, the R^2 increases substantially since the country-level indicators allow us to estimate a unique intercept for every country.[16]

Together, Table 5, Panel C provides some support for H3, although the importance of the assurance variables varies for the two individual dates. Further, the results from Table 5 in conjunction with the results from Table 4 provide a more nuanced view of the market reaction to the Andersen-Enron events. Our results suggest that the reaction around January 10 was driven mainly by firm characteristics, suggesting that investors saw Andersen's problems as affecting some firms, but not others. On the other hand, the reaction around February 4 appears to reflect general concerns about Andersen, i.e., investors reacted negatively to Andersen clients (Table 4), but their response was similar across firms, at least, for the assurance variables (Table 5).

Results for Analysis 4

Table 6 provides the CARs for Andersen's non-U.S. clients that are cross-listed in the U.S. These firms are largely audited by one of Andersen's non-U.S. units, but they are exposed to the same regulatory and legal environment as Andersen's U.S. clients. Similar to Table 2, we report CARs for four different window periods. We find that the non-U.S., cross-listed clients had negative CARs around both January 10 and February 4 which is similar to the results for U.S. firms reported in Table 3. Also, we find evidence that the overall CARs for the two dates for the non-U.S. clients are significant, particularly for the longer window periods. Specifically, the two-event CAR for the $(0, +3)$ window is

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[16] In a supplemental analysis, we use the change in total accruals adjusted by country and industry. Specifically, for every country/industry combination in our sample, we compute the mean change in total accruals for all firms in that industry and country (i.e., we include all non-Andersen clients). We compute the adjusted change in total accruals for each non-U.S. Andersen client *i* as the change in total accruals for client *i* less the mean change in total accrual for client *i*'s industry in client *i*'s country. When we re-estimate Equation (3) using the adjusted measure, similar to Table 5, we find that the adjusted change in total accruals is significant for January 10 when *LEGAL* is included ($\beta_2 = -0.034$, t = -1.841, p < 0.05) or when the country-level indicators are included ($\beta_2 = -0.030$, t = -1.567, p < 0.10). However, the adjusted change in total accruals is not significant for the combined CAR. We also re-estimate Equation (3) using the absolute value of the adjusted change in total accruals. This measure was not significant in any of the models.

TABLE 6
Mean Cumulative Abnormal Returns for Andersen's Non-U.S., Cross-Listed Clients

Panel A: January 10, 2002: Andersen Announces Documents were Shredded

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	0.05%	0.186	49	50	−0.101
(0, +2)	−0.77%	−1.423*	42	57	−1.508*
(0, +3)	−1.10%	−1.759**	39	60	−2.111**
(−1, +3)	−1.65%	−2.564***	34	65	−3.116***

Panel B: February 4, 2002: Andersen Hires Paul Volcker to Head the IOB and Powers Report Released

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	0.44%	1.341	52	47	0.502
(0, +2)	−0.62%	−1.604*	50	49	0.101
(0, +3)	−0.78%	−1.677**	44	55	−1.106
(−1, +3)	−0.83%	−1.217	45	54	−0.904

Panel C: Two-Event CAR

			Sign Test		
Window	CAR	Z-statistic	Positive	Negative	Z-statistic
(0, +1)	0.49%	0.768	50	49	0.101
(0, +2)	−1.39%	−1.757**	49	50	−0.101
(0, +3)	−1.89%	−2.367***	41	58	−1.709**
(−1, +3)	−2.48%	−2.792***	38	61	−2.312**

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests.
CARs are for 99 non-U.S. Andersen clients that are cross-listed in the U.S. CARs are estimated using parameters from the market model estimated over 200-day rolling periods before each window period. The test statistics in Panels A–C are based on corrected Z-statistics based on Mikkelson and Partch (1988) and generalized sign Z-statistics.

−1.89 percent and the two-event CAR for the (−1, +3) window is −2.48 percent, and these CARs are significant based on Z- or sign tests.

Using CARs from the (−1, +3) window period, we conduct two additional analyses to tease out the impacts of assurance and insurance. First, we compare the CARs of Andersen's non-U.S., cross-listed clients with Andersen's non-U.S., non-cross-listed clients. This test basically holds assurance and reputation constant since both sets of firms are mainly audited by one of Andersen's non-U.S. units. However, this test allows the legal environment to vary since the cross-listed firms are exposed to the more regulated and more litigious environment in the U.S. Thus, any difference in the CARs between these groups is most likely due to the insurance component of the audit.

Table 7 shows that the cross-listed, non-U.S. clients had more negative CARs around January 10 and for the combined two-event CAR (see the rows designated as 1). The more negative CARs suggest that the value of the insurance option (imbedded in the price of the

<div align="center">

TABLE 7
Differences in Mean Cumulative Abnormal Returns for (−1, +3) Window Period for
Non-U.S., Cross-Listed Andersen Clients, and Two Benchmark Samples

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Panel A: January 10, 2002: Andersen Announces Documents were Shredded

			Non-U.S., Cross-Listed Compared to Benchmark Sample	
	n	**CAR**	**t-statistic**	**Wilcoxon Z**
Non-U.S., Cross-Listed	99	−1.65%		
(1) Non-U.S., Not Cross-Listed	486	0.34%	−2.940***	−2.325***
(2) U.S.	895	−1.32%	−0.520	−0.214

Panel B: February 4, 2002: Andersen Hires Paul Volcker to Head the IOB and Powers Report Released

			Non-U.S., Cross-Listed Compared to Benchmark Sample	
	n	**CAR**	**t-statistic**	**Wilcoxon Z**
Non-U.S., Cross-Listed	99	−0.83%		
(1) Non-U.S., Not Cross-Listed	486	−0.78%	−0.080	−0.432
(2) U.S.	895	−1.79%	1.414*	0.779

Panel C: Two-Event CAR

			Non-U.S., Cross-Listed Compared to Benchmark Sample	
	n	**CAR**	**t-statistic**	**Wilcoxon Z**
Non-U.S., Cross-Listed	99	−2.48%		
(1) Non-U.S., Not Cross-Listed	486	−0.44%	−2.020**	−1.501*
(2) U.S.	895	−3.10%	0.645	0.503

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, based on one-tailed tests.
CARs are estimated using parameters from the market model estimated over 200-day rolling periods before each window period. In row (1), t-tests and Wilcoxon rank sum tests compare Andersen's non-U.S. clients that are cross-listed in the U.S. and Andersen's non-U.S. clients that are not cross-listed. Negative t- or Z-statistics indicate that CARs for the non-U.S., cross-listed sample are lower than for the non-U.S., non-cross-listed sample. In row (2), t-tests and Wilcoxon rank sum tests compare Andersen's non-U.S. clients that are cross-listed in the U.S. and Andersen's U.S. clients. Positive t- or Z-statistics indicate that CARs for the U.S. sample are lower than for the non-U.S., cross-listed sample.

cross-listed clients) was reduced for the cross-listed clients, particularly by the shredding event. In other words, the U.S. market may have seen the shredding event triggering more or bigger Enron-related lawsuits against Andersen which would have reduced Andersen's ability to pay for claims related to its other clients listed in the U.S.

On the other hand, the market reactions around February 4 are negative but similar for the cross-listed (−0.83 percent) and non-cross-listed (−0.78 percent) clients. This suggests that the market reaction on February 4 was more likely driven by the assurance effect, i.e., damage to Andersen's reputation led investors to question the quality of financial statements audited by Andersen's non-U.S. units whether the clients were cross-listed or not. Thus,

the overall CAR for the cross-listed clients (−2.48 percent) reflects an assurance and insurance component while the CAR for the non-cross-listed clients mainly reflects the loss of assurance or reputation.[17]

Finally, we also compare the CARs of Andersen's non-U.S. clients that are cross-listed in the U.S. with the CARs of Andersen's U.S. clients. These tests basically control for the insurance effect since both sets of firms are exposed to the same regulatory and legal environment. Thus, differences will primarily be due to differences in assurance or reputation between Andersen's U.S. and non-U.S. units. If the level of assurance provided is similar in and outside the U.S. and if Andersen's reputation is global, we would expect similar reductions in value for U.S. and non-U.S. clients when the bad news about Andersen's U.S. unit became known.

Table 7 also contains these results (see the rows designated as 2). For January 10 and the combined two-event CAR, we do not find any statistical differences between the non-U.S., cross-listed clients and the U.S. clients. On February 4, we find that based on a t-test, the CAR for the non-U.S., cross-listed clients is higher (i.e., less negative) than the CARs for the U.S. clients, but based on a Wilcoxon rank sum test the difference is not significant. Thus, for the most part, the non-U.S., cross-listed firms experienced similar market reactions to Andersen's U.S. clients. Since these tests control for an insurance effect, the key take-away is that the assurance or reputation effect was similar for clients audited by Andersen's U.S. and non-U.S. units, which suggests similar levels of audit quality across Andersen.

CONCLUSION

We examine the market reaction for Andersen's non-U.S. clients around two key dates related to the Andersen-Enron affair. We find negative and significant two-event CARs (for January 10 and February 4 combined) for Andersen's non-U.S. clients, which suggests that Andersen's reputation suffered outside the U.S. We conduct two additional analyses to address Nelson et al.'s (2008) concern that CARs in the U.S. around January 10 and February 4 are affected by market-wide news. First, if market-wide news is driving our results, we would expect similar CARs in all countries, but if auditor reputation is driving the results, we would expect more negative CARs in common law countries where audit quality is more important. Second, within a country, we would not expect CARs to differ between firms based on the firm's need for assurance if market-wide news is driving the results. In line with our expectations, we find more negative CARs in common law countries and for firms with a greater demand for assurance.

We also examine CARs for Andersen's non-U.S. clients that are cross-listed in the U.S. We find these CARs are significantly lower than CARs for Andersen's non-U.S. clients that are not cross-listed, suggesting an insurance effect in the U.S. We also find that the CARs for Andersen's non-U.S., cross-listed clients are similar to the CARs for Andersen's U.S. clients which suggests that, controlling for the insurance effect, the assurance or reputation effect is similar whether the client is audited by Andersen's U.S. unit or one of its non-U.S. units. Overall, our evidence suggests that the reputations of the largest audit firms do contain an international component which is consistent with the marketing claims made by these organizations.

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[17] It is possible that firms in common law countries are more likely to cross-list than firms in civil law countries. Consequently, we replicate this analysis using a matched pairs design where we match each of the 99 cross-listed firms with a non-cross-listed firm from the same country-industry. Our results (untabulated) are qualitatively similar to those reported in Table 7.

As with any research, we note some limitations. First, our assurance variables are relatively crude so our results could be open to alternative interpretations. Second, our sample is drawn from Compustat's Global Vantage and Canadian databases so our sample will reflect any biases in Compustat's selection criteria. Third, we take a macro view and do not consider how local professional or legal requirements might affect the value of an audit.[18] Fourth, while we attempt to address concerns about confounding events, it is possible that market-wide news could still be influencing our results.

We contribute to the literature in several ways. First, we contribute to prior research that examines the implications of higher auditor reputation at the international level. For example, the audit fee research finds consistent evidence of large (Big N) auditor premiums in a variety of countries (see Hay et al. [2006] for a review). Also, several studies examine the effect of auditor reputation in IPO markets in various countries (e.g., Beatty 1989; Clarkson and Simunic 1994; Firth and Liau-Tan 1998; Lee et al. 2003). However, these studies do not consider how specific auditor-related events in one country might affect that auditor's clients in other countries. Second, while there is an emerging literature examining the Andersen-Enron affair (e.g., Chaney and Philipich 2002; Barton 2005; Krishnan 2005; Cahan and Zhang 2006; Krishnamurthy et al. 2006; Blouin et al. 2007; Nelson et al. 2008), ours is the first study to explicitly examine the impact on Andersen's non-U.S. clients across countries. Third, we add to the growing body of research that examines international differences in financial reporting (e.g., Ball et al. 2000; Hung 2001; Leuz et al. 2003), and specifically, we add to a subset of that research that uses legal systems to explain differences in audit markets on a cross-country basis (e.g., Francis et al. 2003; Fan and Wong 2005; Guedhami and Pittman 2006; Choi and Wong 2007). However, unlike these studies, we use a market measure to estimate the (changes in the) value of an audit.

APPENDIX
Variable Descriptions and Data Sources

Variable	Description	Source
Country-Level Variables		
BANK	Indicator variable reflecting whether a country's ratio of deposit money bank assets to market capitalization is high (= 1) or low (= 0).	Bushman and Piotroski (2006)
CIFAR	Index based on ratings of 1995 company annual reports by the Center for Financial Analysis and Research (CIFAR). Ratings are based on the inclusion or omission of 90 items.	Bushman et al. (2004)
SYNCHRON	Measure of stock market synchronicity. Equal to the within country average R^2 from firm-level regressions of bi-weekly stock returns on local and U.S. market indexes.	Morck et al. (2000)

(*continued on next page*)

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[18] For example, auditors might be subject to mandatory rotation rules, the length of their appointment might differ, and there may be restrictions on the types of nonaudit services they can provide. Also, corporations in civil law jurisdictions may be subject to additional laws that require auditor input or comment, i.e., the auditor may have some accountability to the government.
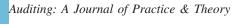
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Variable	Description	Source
Firm-Level Variables		
CHG_TAC	$TACC_{2001} - TACC_{2000}$ where *TACC* equals (Income before extraordinary items$_{2001}$ − net cash from operating activities$_{2001}$)/Total assets$_{2001}$	Compustat
S_GROW	(Net sales$_{2001}$ − net sales$_{2000}$)/Net sales$_{2000}$	Compustat
NEW_ISSUE	Value of new shares or new debt issued in 2001/Total assets$_{2001}$	Compustat
VOLATILITY	Standard deviation of returns over 200 days prior to event 1	DataStream
SIZE	$\ln(MVE_{2001})$	Compustat

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