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When auditors say "no", does the market listen?*

Shimin Chen
China Europe International Business School
Bingbing Hu
Hong Kong Baptist University
Donghui Wu†
The Chinese University of Hong Kong
Ziye Zhao
Shanghai University of Finance and Economics

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Abstract

Previous research on whether the market responds to auditors' opinions has provided mixed results. We revisit this issue in China, where the stock market is dominated by individual investors who are more likely to neglect value-relevant information. In addition to going concern opinions (GCOs), China permits modified audit opinions (MAOs) on violations of accounting standards or disclosure rules (GAAP/DISC MAOs), providing an opportunity not available in the literature to enrich the study of audit-opinion pricing. We find that, *ceteris paribus*, MAO recipients underperform in the future and have higher incidence of other outcomes that are adverse to investors, and the market reacts negatively to MAOs during the short window around MAO disclosure. Importantly, MAO disclosure is not followed by negative long-term stock returns, suggesting that stock price adjustments to MAOs are speedy and unbiased. These findings hold for both GCOs and GAAP/DISC MAOs. Together, our findings support the informativeness of audit opinions and cast doubt on the argument that investors inefficiently price audit opinions due to information processing bias.

Keywords: audit modifications; information content; capital market efficiency
JEL Classifications: G14; M42

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† Contact author.

1. Introduction

In theory, audit opinions should be a useful input in valuing securities. From the information perspective, a modified audit opinion (MAO) would indicate greater uncertainty associated with the prospect of the auditee. From the contracting perspective, an MAO would imply the possible breach of contractual arrangements and wealth transfer. The release of MAOs should therefore be accompanied by a decline in stock prices. Two streams of studies examine market response to MAOs in general and going-concern opinions (GCOs) in particular. While event studies attempt to infer the informativeness of audit opinions by observing market reaction around the disclosure of audit qualifications (e.g., Elliot 1982; Dodd et al. 1984; Loudder et al. 1992; Frost 1994; Menon and Williams 2010; Myers et al. 2018), long-window studies examine 12-month abnormal returns following GCOs to assess whether the market fully absorbs their negative information content (e.g., Taffler et al. 2004; Ogneva and Subramanyam, 2007; Kausar et al. 2009; Kausar et al. 2013). Overall, both streams of research provide mixed evidence. As Healy and Palepu (2001, p. 406) remark, "While theory suggests that auditors enhance the credibility of financial reports, empirical research has provided surprisingly little evidence to substantiate it."

Among reasons provided for mispricing of audit opinions, naïve investors' inability to understand information contained in MAOs is often cited as a primary explanation (Taffler et al. 2004; Kausar et al. 2009; Kausar et al. 2013). For example, Kausar et al. (2013) argue that market inefficiency with respect to audit opinions can be attributed to investors', particularly small retail investors', tendency to deny the bad news conveyed by audit reports. In this study, we take advantage of an interesting research setting in China to test this naïve-investor explanation. If audit-opinion mispricing stems from naïve investors' information processing bias, we should be able to find stronger evidence in China as the emerging Chinese stock market is dominated by less sophisticated small individual investors. Furthermore, unlike the U.S. SEC, the China Securities Regulatory Commission (CSRC) does not bar audited financial statements with a qualified opinion due to violations of the generally accepted accounting principles or disclosure rules (GAAP/DISC MAOs). These audit modifications differ from GCOs as they reflect auditors' concerns about clients' accounting integrity or disclosure transparency rather than financial viability. The value implications of GAAP/DISC MAOs cannot be simply inferred from the previous GCO-based studies. Thus, investigating GAAP/DISC MAOs provides additional insights into the pricing of audit opinions. Finally, the short-selling constraint in China's stock market may also inhibit the incorporation of negative information into stock prices, further exacerbating the mispricing of MAO stocks. In sum, China affords an opportune testing ground for analyzing whether mispricing of audit opinions exists as a universal human information processing and assimilating problem.

To ensure test validity, we adopt a comprehensive methodology that differs from prior research in two important ways. First, previous studies have assumed that audits are of high quality and that audit

modifications predict the financial distress of client firms. However, auditors can "misreport" (Deng et al. 2012; Fogel-Yaari and Zhang 2013; DeFond and Zhang 2014) so that audit opinion modifications do not necessarily convey meaningful information to investors. As Richardson et al. (2010) articulate, to examine how a given accounting variable is associated with future returns, one must first establish the ability of this variable in forecasting future fundamentals. We therefore investigate the association between audit modifications and future financial performance before assessing the usefulness of audit opinions in pricing securities. Second, much of the evidence for MAO information content is based on short-window market reaction around MAO disclosure (e.g., Menon and Williams 2010). However, contemporaneous price response evidence alone is not sufficient to conclude the informativeness of audit opinions as investors can over- or underreact. To fully understand MAO mispricing, we extend the measurement window to further assess post-MAO stock returns.

For audit quality in China, we find that MAOs strongly predict recipients' one-year-ahead under-performance relative to non-MAO firms. Moreover, the presence of MAOs negates the informativeness of current performance about future performance and is associated with higher incidence of financial report misstatements, corporate misconducts, and penalties imposed by stock exchanges (e.g., delisting). To assess how audit opinions are priced, we first analyze market reaction to MAO disclosure by the event study approach and observe that the market reacts negatively. Moreover, the negative reaction is stronger after regulations against GAAP/DISC MAO recipients are strengthened and when MAOs are accompanied by signs of earnings management. We then test whether the short-term negative market reaction fully reflects MAOs' information content by examining post-MAO stock returns. Inconsistent with the mispricing argument, we find no significant evidence on negative 12-month stock returns following MAO announcements, using various measurements of abnormal returns, return computation methods, and data analysis approaches. Collectively, we find no evidence supporting the naïve-investor explanation for mispricing of audit opinions.

Although our findings are based on a comprehensive approach rooted in the empirical asset-pricing literature and applied in a setting where mispricing is likely to exist, we are unable to fully explain why the evidence is mixed in prior studies. All we conclude is that a naïve-investor explanation in the literature is unlikely to be the answer. Without doubt, a further understanding of the audit-opinion anomaly needs additional research. With this caveat in mind, we contribute to accounting research and practice in three ways. First, we provide consistent evidence for the informativeness of modified audit opinions in the Chinese stock market, where the dominance of small individual investors would suggest mispricing under the naïve-investor hypothesis. Given the advantage of our research setting and empirical methodology, we add an important piece of evidence to the literature on pricing of audit opinions. Second, by examining audit modifications triggered by violations of GAAP or disclosure rules, we provide new evidence on the capital market effect of disclosing problematic accounting practices (Dechow et al. 2010). Previous studies have documented negative stock price reactions to the

ex post disclosure of earnings manipulation alleged by the regulators (Feroz et al. 1991; Dechow et al. 1996) and firms' restatements of financials (Wu 2003; Palmrose et al. 2004; Gleason et al. 2008). We document how the market assimilates problematic accounting practices that are explicitly challenged by the auditor, answering the question of whether "investors are able to unwind incentives and to incorporate an expectation of earnings management into their pricing" (Dechow et al. 2010, p. 380). Finally, our research findings are also informative to auditing-standard setters, who recently revamped the format of audit reports (IAASB 2015; PCAOB 2017). These changes imply that audit-opinion information in its current form is relevant to investors' assessment of firms' financial condition, performance, and value, and improving the structure and content of the audit report would further enhance the usefulness of the audit-opinion information. Our findings support the importance of disclosing the audit-opinion information to the market, but whether the proposed improvements in audit reporting will supply incremental information to the market still awaits future research.

2. Background of Research and Hypotheses

2.1. The literature

Under the event study approach, researchers infer the usefulness of audit opinions by observing the market reactions to audit qualifications. Early studies (Elliot 1982; Dodd et al. 1984) failed to find any systematic response. Because audit opinions could be released to the market through several possible channels in the U.S., one explanation for the lack of evidence is the difficulty in identifying the precise dates when investors first learn the audit opinions from public sources (Dodd et al. 1984). However, by improving the methodology of identifying the precise disclosure dates of audit qualifications, subsequent studies continue to find that the negative price effects of audit qualifications are specific to qualifications that receive media attention (Dopuch et al. 1986) or are very weak economically (Loudder et al. 1992; Frost 1994). More recently, Menon and Williams (2010) find economically large negative excess returns when a going concern audit report is disclosed. Nevertheless, the debate goes on: Myers et al. (2018) find no market response to going concern modification once concurrently disclosed material information is controlled for.

Market response evidence alone, however, is not sufficient to establish the informativeness of audit opinions. As the market could over- or underreact, observing negative market reactions to qualified audit opinions does not necessarily mean that such information is priced rationally.[1] This can also be

[1] Using a sample of firms listed on the Shanghai Stock Exchange from 1995 to 1997, Chen et al. (2000) document significantly negative market returns during the short windows surrounding the disclosure of MAOs. However, they note that due to the lack of previous experience, Chinese investors may interpret MAOs as an indication of bankruptcy and react negatively. Likewise, the market may under-estimate the negative implications of MAOs

illustrated by the evolution of the literature on the value relevance of accounting accruals. Without finding any difference in the contemporaneous stock price responses to the cash flow and accrual components of earnings, early studies conjecture that the information content of cash flows may not be different from that of accruals (e.g., Bernard and Stober 1987). The seminal study of Sloan (1996) demonstrates that cash flows are significantly more persistent in predicting future earnings than accruals; however, the market fails to fully recognize this difference until the realization of future earnings unravels it. Therefore, to fully understand the informativeness of audit opinions, it is necessary to extend the measurement windows forward to allow for a better assessment of the content of relevant information (Aboody et al. 2002).

A number of studies investigate the 12-month stock returns following GCO disclosure. In line with the literature on the anomalous market under-reaction to bad news events, Taffler et al. (2004) document significantly negative 12-month abnormal returns following the first-time GCOs in the U.K. However, Ogneva and Subramanyam (2007) find no such evidence in the Australian market, and report that the negative post-GCO abnormal returns are sensitive to choices of expected returns in the U.S. Interestingly, Kausar et al. (2009) re-examine the U.S. market and are able to show significantly negative post-GCO stock returns. They attribute the difference between their findings and those of Ogneva and Subramanyam (2007) to several methodological issues, including the data source for identifying GCO observations, the computation of delisting returns, and the treatment of outliers. Although Taffler et al. (2004), Kausar et al. (2009), and Kausar et al. (2013) all argue that retail investors tend to deny the bad news conveyed by GCOs, they also recognize alternative explanations for the "anomalous" results such as high transaction costs impeding rational investors from exploiting the anomaly. Adding to the debate over the market efficiency regarding audit opinions, field evidence suggests that financial statement users take auditor opinions into account (Gray et al. 2011).[2] In sum, how the market uses GCO information in pricing stocks remains inconclusive [see also the discussion by Church et al. (2008) and Mock et al. (2013) in their syntheses of audit report research].

2.2. The Chinese stock market

Although the Chinese stock market was established only in the early 1990s, by the end of 2012, in terms of market capitalization, China has overtaken Japan to become the world's second-largest stock market, exceeded only by the U.S.[3] In October 2002, the CSRC issued the first Sino-foreign fund management

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and under-react, even if researchers observe the negative responses when MAOs are disclosed.

[2] In particular, Gray et al. (2011, p. 672) report that "There was a general consensus among participants that a going-concern opinion provides important information to financial statement users. User groups assumed that if the auditor's report does not include a going-concern comment, the auditors performed an adequate going-concern analysis and concluded going-concern was not an issue."

[3] Source: http://data.worldbank.org/indicator/CM.MKT.LCAP.CD.

license. Since then, foreign money managers have increased their stakes invested in China. By the end of March 2013, China had granted a combined USD41.745 billion in Qualified Foreign Institutional Investors (QFII) quotas to 197 foreign institutions (Reuters 2013).

Despite China's significant strides in developing its stock market, small individual investors are predominant in the Chinese stock market. At the end of 2002, less than 10% of the accounts on the Shanghai Stock Exchange had a portfolio value of RMB100,000 (or approximately USD12,000) or more, which indicates a lack of large and institutional investors in the market (*Security Times*, January 4, 2003). Although recent years have seen the development of China's institutional investor community, trading by individual investors in 2013 still accounts for 82.24% of the Shanghai market's total trading volume (Shanghai Stock Exchange, 2014). As small investors tend to be less sophisticated, they are more likely to neglect the implications of value-relevant information such as audit opinions than institutional investors (Cohen et al. 2002; Barber and Odean 2008). Ogneva and Subramanyam (2007, p. 440) argue that, "*Ceteris paribus*, if the principal source of the GC opinion anomaly is human information processing bias, one would expect to observe similar inefficiency in other markets (countries)." Following this reasoning, we expect such an anomaly to be even more pronounced in China, if investor behavior bias indeed leads to mispricing of audit opinions.

Additionally, three other characteristics enhance the usefulness of China's stock market in analyzing audit-opinion mispricing if it exists. First, the short-selling of stocks is generally not allowed in China.[4] Because short-selling speeds up the incorporation of negative news into stock prices (Chen et al. 2002; Chang et al. 2007), its constraint in China could magnify the mispricing of MAOs. Second, China's stock market is highly liquid. Titman et al. (2013) show that China is ranked the 3rd place, next only to Korea and Pakistan, in terms of stock turnover ratio. As reported later, the high liquidity also holds for the MAO stocks in our sample. Given that the stocks are actively traded, we can, to a great extent, exclude friction in trading as an explanation for mispricing (Basu 2004). Finally, as Kausar et al. (2009) observe, returns to GCO firms are highly sensitive to the computation of delisting returns. For Chinese data, this complication is less serious, as only a very small number of stocks in the MAO portfolios are delisted.

2.3. Audit reporting in China

In tandem with the development of stock market, the Chinese audit industry has grown rapidly. In 2013, total industry revenues reached RMB56.3 billion (XinHua Net, May 2014), which represents a growth of 511.8% relative to 2002 and makes China one of the major audit markets in the world. Reflecting

[4] In October 2008, the CSRC announced a pilot scheme of short selling, and the bans on short selling and margin trading were lifted at the end of March 2010. However, only 6 brokerages were qualified to engage in securities lending and margin financing, and only 90 designated stocks were available to investors for shorting.

the growth of audit profession in China, the economics-based research on Chinese auditing has developed into a fairly established literature. Simunic and Wu (2009) review nearly 50 China-based auditing studies, including 40 published in international journals from 1996 to 2009, and conclude that these studies reflect factors both unique to China and common to international practice. Among the issues studied, auditor reporting has drawn continuous attention. Using MAOs as a proxy for audit quality and/or auditor independence, researchers have documented various determinants of MAOs in China, including auditing standards (DeFond et al. 2000), earnings management (Chen et al. 2001), government licensing and sanctions (Chen et al. 2005; Chen et al. 2010), corporate governance (Chen et al. 2005; Firth et al. 2007), local government political influence (Chan et al. 2006), client economic importance (Chen et al. 2010), risk and liability exposure (Firth et al. 2012), auditor size (Chan and Wu 2011), individual auditors' styles and social ties (Gul et al. 2013; Guan et al. 2016; He et al. 2017), etc. In a related vein, auditing reports have been found to have economic consequences, such as negative market reaction to MAOs (Chen et al. 2000), improved earnings response coefficients as a result of voluntary auditing (Haw et al. 2008) or engaging high-quality auditors (Haw et al. 2008; Gul et al. 2003), negative impact of MAOs on commercial credit (Zhang 2013), etc. Further enhancing this line of research, our study connects dots in the literature by examining the usefulness MAOs and testing whether investors are able to price MAOs efficiently in China.

China's Independent Auditing Standards (CIAS) stipulate four types of audit opinions: unqualified, qualified, disclaimer, and adverse. The CIAS also allow the use of explanatory notes with unqualified opinions where necessary. Chen et al. (2001) note that an unqualified opinion with explanatory notes is often issued in place of a qualified one in China and that the Chinese regulators also treat this type of reports as non-clean opinions in disclosure requirements or delisting decisions. Therefore, consistent with previous studies on China's audit market (e.g., Chen et al. 2000; Mo et al. 2015), we consider this type of audit opinion as one form of qualifications. In addition to the four types of MAOs above, the CIAS also provide principles and guidelines for an auditor to express concern over the client's ability to continue as a going concern in the foreseeable future. Comparable to the international auditing practice, Chinese auditors can issue GCOs together with any of the four types of opinion modifications depending on the severity of going concern doubt. In principle, the CIAS follows the International Standards on Auditing in all audit opinion modifications including GCOs. Therefore, the auditor is required by the CIAS to assess an audit client's ability to continue as a going concern.[5] Nonetheless,

[5] The GCO reflects auditors' judgment about the validity of going-concern (vs. liquidation) assumption as a basis of financial statements preparation rather than bankruptcy prediction. Under the U.S. auditing standards (AS 2415), the auditor should issue a GCO if s/he has substantial doubt about the client's ability to continue as a going concern for a reasonable period of time. The AS 2415 explicitly states that the auditor is not responsible for predicting future conditions or events. As such, the absence (presence) of a GCO is not auditor's assurance (prediction) that the client will continue (cease) to exist. From this perspective, the use of bankruptcy-based Type I/II errors in GC

as observed by Mo et al. (2015), Chinese auditors struggle between two competing incentives in issuing GCOs. On the one hand, a low threat of bankruptcy together with client pressure makes an auditor reluctant to issue such a report due to the costs of a Type I error. On the other hand, bankruptcy threat has been increasing over the years due to legislative and legal reforms, and financially distressed firms also suffer in many other ways such as business operation, external financing, regulatory penalty, stock pricing, etc. In fact, a financially distressed public firm often becomes a dormant "shell company", which has virtually no value as an ongoing operational entity but can be taken over by a non-listed entity to circumvent the strict regulatory rationing and control in China's IPO administration (Lee et al. 2017). This practice, termed as "major asset restructurings" (MARs), is an important reason why bankruptcy filings have been rare among listed companies in China. However, MARs are surrounded by a high level of uncertainty, which often leads to investor losses due to stock price tumbling and even delisting. Consequently, the costs of a Type II error to an auditor in terms of lawsuits, regulatory penalty, and reputation loss are increasingly higher if a clean opinion is issued when a GCO is justified.[6]

Given the dilemma in balancing between the two types of costs, Chinese auditors issue more GCOs over time (Mo et al. 2015, and also our Table 1 below). In fact, GCOs appeared in China as early as 1997 even before the issuance of related GC auditing standard in 1999. Chen et al. (2005) document several reasons behind the early GCOs, including heavy debts, extremely poor financial conditions, and production suspension. They attribute the issuance of GCOs without explicit auditing standard to auditors' self-protection tendency. Evidently, in the eyes of Chinese auditors, the costs of Type II errors exceed those of Type I errors in issuing GCOs. The China auditing literature contains much evidence supportive of this interpretation. From interviewing audit partners, Firth et al. (2012) notice a strong consensus in litigation as a major risk factor. The interviewed partners also worry about their personal liability and licenses to practice due to regulatory sanctions and reputation loss. In line with their interviews, Firth et al. (2012) report that auditors in partnership CPA firms are more likely to issue GCOs to financially distressed firms than auditors in limited-liability CPA firms. Besides harsh regulatory penalties, audit failures in China also lead to substantial damage to auditor reputation in terms of client loss or audit fee discount (Gao et al. 2013; He et al. 2016; Su and Wu 2018). While Mo et al. (2015) find an increased propensity for local top-10 auditor to issue GCOs only when litigation/regulation risks are heightened after the enactment of Bankruptcy Law, Big 4 auditors in China are always more likely to issue GCOs than their local counterparties. Evidently, GC reporting in China is not only affected by auditors' concern for litigation and regulatory risks (the costs of Type II

reporting is a misnomer (Myers et al. 2018). The Chinese auditing standards or the International Standards on Auditing echo the AS 2415 on the guidance to the auditors with respect to GC reporting.

[6] Chinese auditors often use such a language in GCOs: "although the company strives to improve performance via asset restructuring, its ability to continue as a going concern remains highly uncertain."

errors), but also shaped by international auditing practice followed by Big 4 auditors.

Audited financial statements with qualified opinions for GAAP and/or disclosure violations are allowed in China. Such GAAP/DISC MAOs involve a wide range of reasons. Through providing details and examples, Chen et al. (2001) and Chen et al. (2005) show that typical reasons underlying such MAOs include related-party transactions, asset impairments, questionable business transactions and practices, problematic accounting treatment, insufficient disclosure, violation of laws and regulations, etc. Following the taxonomy developed by Chen et al. (2005), we classify the underlying reasons for all MAOs during our sample period in Appendix 1. Since an MAO typically involves multiple items and reasons, the frequency of reasons is much larger than that of MAOs. Among the various reasons for GAAP/DISC MAOs, some may appear to be "harmless." However, according to the analysis of Chen et al. (2001) and Chen et al. (2005), auditors convey meaningful information to financial-statement users through these seemingly "harmless" MAOs. For example, emphasizing related-party transactions or mentioning a violation of consistency can be auditors' cue for clients' earnings management by transactions or changes in accounting policies. Audit scope limitation due to logistic difficulties in auditing a subsidiary, an often-cited reason for disclaimers, is often of suspicious nature as the client company may have managed earnings by engaging in questionable transactions with that subsidiary. Therefore, same as prior China-based auditing studies, we consider all GAAP/DISC MAOs regardless of the specific reasons given by the auditors. Bradshaw et al. (2001) argue that mispricing is more likely to occur for more complex accounting matters. Likewise, it might be less straightforward for investors to infer the value implications of GAAP/DISC MAOs than those of GCOs because the former is auditors' doubts over accounting for or disclosure of various transactions/activities whereas the latter represents the red flag raised by auditors over firms' financial health. From this perspective, evidence from our research setting offers additional insight into the pricing of audit opinions.[7]

2.4. Research hypotheses

To establish the usefulness of audit opinion information, the first step is to test whether MAOs predict firms' future financial performance (Richardson et al. 2010). We expect GC to be negatively correlated with firms' future performance because GCOs represent the auditors' adverse opinions regarding clients' ability to continue as a going concern. Although GAAP/DISC MAOs may not have a direct bearing on firms' future financial viability, for two reasons we expect this type of MAOs to be associated with worse future performance. First, the violation of GAAP or disclosure rules *per se* indicates misrepresentation in financial reporting. Because audit failure costs are asymmetrically higher for overstatements

[7] Alternatively, GCO firms have more severe financial and operational problems and investors may confront great uncertainties and challenges in valuation. In any event, we examine two types of audit opinions separately in the following analyses.

than for understatements, auditors are more concerned with performance overstatements (St. Pierre and Anderson 1984). Consistent with this explanation, clients that manage earnings upwards to meet regulatory benchmarks are significantly more likely to receive MAOs (Chen et al. 2001). Prior studies have documented that overstated performance is likely to be followed by weaker future performance (Teoh et al. 1998; Xie 2001; Richardson et al. 2005). Second, MAOs are often issued for reasons such as questionable business transactions and possible violation of laws and regulations. Such behaviors increase firms' operating or financing risks, impairing their long-term profitability and solvency. Based on the above reasoning, our first hypothesis is stated as:

H1: *Ceteris paribus*, MAO recipients underperform clean-opinion recipients in the future.

If MAOs have negative value implications as H1 suggests and investors understand such implications and use them accordingly in their investment decisions, then the market will respond negatively upon the announcements of MAOs. This leads to our second hypothesis:

H2: Stock returns for MAO recipients are negative during the short windows surrounding the announcements of MAOs.

According to the Efficient Market Hypothesis, if the market incorporates all available information into share prices, then investors are not able to make economic profits based on publicly available information (Jensen 1978). In the context of audit opinions, if investors correctly price MAOs according to their actual value implications for future performance, then we should not observe negative long-term stock returns following the publication of MAOs. However, the GCO mispricing literature suggests that investors tend to deny the bad news conveyed by MAOs due to human information processing bias. If the market assigns a smaller valuation coefficient to audit modifications relative to their actual predictability for future performance, the stock prices of MAO firms are likely to be overvalued. When realized fundamentals in subsequent periods differ from those expected by the investors, the market corrects the mispricing, but with a delay. It follows that part of the future returns can be predicted by the information contained in current audit reports. We test these two competing theories by the following hypothesis (in the alternative form):

H3: Stock returns for MAO recipients are negative during the long windows following the announcements of MAOs.

3. Research Methodology

3.1. Financial performance measures

Consistent with Piotroski (2000) and Mohanram (2005), we measure firms' financial performance in terms of profitability, financial risk, and operating efficiency by the following variables:

ROA = Operating income divided by the average of beginning and ending total assets.[8]

OCF = Operating cash flow divided by the average of beginning and ending total assets.[9]

Loss = 1 if operating income is negative, and 0 otherwise.

Negative OCF = 1 if operating cash flow is negative, and 0 otherwise.

Leverage = Total borrowings divided by total assets at the end of the year.

Liquidity = Current assets divided by current liabilities at the end of the year.

Gross Margin = Gross margin divided by sales.

Turnover = Sales divided by the average of beginning and ending total assets.

Among these fundamentals, *ROA* and *OCF* measure firms' operating performance. We consider both accrual- and cash-flow-based measures because the accrual components of earnings can be managed by firms, as the longstanding earnings management literature documents. Moreover, we use two indicator variables, *Loss* and *Negative OCF*, because the ability to generate positive earnings or cash flow is critical to firms' long-term survival and a loss-status is often interpreted as a warning signal in firms' performance evaluation. We measure firms' financial risk using *Leverage* and *Liquidity*. Higher *Leverage* or lower *Liquidity* indicates difficulty in meeting debt service obligations. Finally, *Gross Margin* and *Turnover* capture the efficiency of firms' operations. We aggregate these fundamental variables into a single score. As variables in continuous form differ in the scale and are not directly comparable, we first normalize them within each industry-year by the following function:

$$Z(x) = [x_i - \text{Min}(x)]/[\text{Max}(x) - \text{Min}(x)], \quad (1)$$

where x_i is the original value of the variable, Min(x) and Max(x) are the minimum and maximum values, respectively, of x in the industry-year. After normalization, the continuous fundamental variables all range from zero to one. The aggregate measure, labeled as *F-Score*, is computed as:

$$F\text{-}Score = Z(ROA) + Z(OCF) - Loss - Negative\ OCF - Z(Leverage)$$

[8] Under the Chinese GAAP, financial expenses are reported above operating income in income statements. We adjust operating income by adding financial expenses back to reported operating income so that the operating income variable is free of firms' financing activities.

[9] For years before 1998, when cash flow statement data are not available in China, operating cash flow is defined as the difference between operating income (adjusted for net interest expenses) and total accruals, and total accruals are estimated by the balance sheet approach as:
(ΔCurrent asset − ΔCash − ΔShort-term investments − ΔCurrent portion of long-term investments) − (ΔCurrent liability − ΔShort-term borrowings − ΔCurrent portion of long-term debt − ΔDividends payable) − Depreciation and amortization expense, where Δ denotes the change between the current and previous year.
For year 1998 and onwards, operating cash flow data are obtained from cash flow statements.

$$+ Z(Liquidity) + Z(Gross\ Margin) + Z(Turnover), \quad (2)$$

where Z(•) stands for the above normalization function. A higher *F-Score* indicates stronger performance.[10] For our sample, the mean value for this score is 1.364**.** An *F-Score* lower than this value suggests that the firm's overall performance is below average.

Although the F-score is an empirically constructed measure encompassing operational performance and financial conditions, its information value to investors has been confirmed by various studies. For example, Piotroski and So (2012) show that firms with a low market valuation but high financial strength in terms of the F-Score are more likely to be mispriced, which in turn leads to higher returns when the mispricing is corrected. Chung et al. (2015) report that monitoring institutions (long-term institutions with large shareholdings) consistently improve a firm's F-Score, while the presence of transient institutions contributes to a lower F-Score. Ng and Shen (2016) and Jiang et al. (2018) provide supportive evidence on the investment value of the F-Score in the Pacific-Basin markets and China, respective. Essence Securities (2010), a Chinese security firm, demonstrates the superior performance of an F-Score strategy in China between 2000 and 2010. Since GCOs and GAAP/DISC MAOs are related to various aspects of a recipient firm's performance and financial conditions, it is more appropriate to use a composite financial indicator like the F-Score to test H1.[11]

3.2. The stock return measures

3.2.1. The short-window returns

We use the event-study approach to test H2. According to Chinese disclosure rules, auditors' reports are released together with annual reports and financial statements on the same date. Before the formal announcements, the auditor's opinion is classified as inside information by China's *Securities Law* and the specific type of audit opinions are unknown to the market.[12] We therefore define the event day 0 as the annual report announcement date. Consistent with Menon and Williams (2010) and Myers et al. (2018), the window for testing market reactions to MAOs runs from day 0 to +2. For short windows, the daily expected returns are close to zero and the choice of expected returns has little effect on inferences (Fama 1998). We therefore calculate stock returns as buy-and-hold market-adjusted returns although results based on *Size-B/M* reference portfolio adjusted returns are similar.

[10] The coefficients for the correlation between *F-Score* and *ROA*, *OCF*, *Loss*, *Negative OCF*, *Leverage*, *Liquidity*, *Gross Margin*, and *Turnover* are 0.665, 0.628, –0.619, –0.652, –0.497, 0.242, 0.393, and 0.248, respectively ($p < 0.001$ for all correlation coefficients).

[11] As presented later, we also employ another widely used empirical proxy, the Altman Z-Score, in testing H1 and obtain consistent results, which further assures the usefulness of the F-score information to investors.

[12] We confirm such a practice with a senior audit partner in China and an official at the CSRC.

3.2.2. The long-window abnormal returns

To test whether audit opinions are mispriced, we compute 12-month abnormal returns beginning in May of year $t + 1$. All Chinese firms use calendar fiscal years and should disclose audited financial statements within four months after the fiscal-year end. Therefore, by the end of April of year $t + 1$, audit opinion types and related financials are known to the market and portfolios can be formed by audit opinions. The 12-month window also ensures that earnings shocks in year $t + 1$ are known to investors so that they can correct the mispricing of MAOs, if any (Bernard et al. 1997). In light of the debate on the accuracy of long-term stock return measurement (Barber and Lyon 1997; Kothari and Warner 1997; Fama 1998), we compute both buy-and-hold and cumulative abnormal returns, and use a variety of metrics of abnormal stock returns, as follows:

(1) The market-adjusted returns are defined as stock returns minus the equal-weighted market return over the same period.

(2) The portfolio-adjusted returns are measured as stock returns minus the equal-weighted return of a comparable *Size* and *B*/*M* portfolio return over the same period. *Size* is defined as the market value of tradable shares.[13] *B*/*M* is defined as the book value of equity per share divided by the market value per share. At the beginning of each May, all stocks are sorted into quintile groups by *Size* and *B*/*M* independently, and then 25 *Size*-*B*/*M* portfolios are formed.[14]

(3) The *Size-B/M* matched control returns are calculated as stock returns minus the return of a control stock matched by size and *B/M* over the same period. We first identify all non-MAO recipients with a market value of equity between 70 and 130% of the market value of equity of the MAO recipient at the end of April in year $t + 1$. From this set of firms, we select the firm with the closest book-to-market ratio to the MAO recipient at the end of April in year $t + 1$ as its match.

(4) The *B/M-Size* matched control returns are defined similarly to those of *Size-B/M* matched control returns, except that we match MAO and non-MAO recipients first by *B/M* and then by *Size*.

(5) The *F-Score* matched control returns are measured as stock returns minus the return of a control stock matched by $F\text{-}Score_t$ over the same period. For each MAO recipient, we select a non-MAO observation in the same year with the closest $F\text{-}Score_t$ to the MAO recipient as its match.

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[13] Before the split-share structure reform launched in 2005, listed Chinese firms had two classes of common shares: the tradable shares were freely floating on the stock exchanges and non-tradable shares could only be transferred through negotiation between designated parties. Our results are not sensitive to measuring *Size* as total market value (= total number of shares outstanding, tradable or non-tradable, times share price per share).

[14] Fama and French (1992) show that size and *B*/*M* are two important determinants of cross-sectional variation in average stock returns in the U.S. This finding also holds in Japan (Chan et al. 1991; Daniel et al. 2001) and other countries (Fama and French 1998). Our untabulated analysis suggests that both *Size* and *B*/*M* also explain the average monthly stock returns in China's stock market. A number of papers, e.g., Chan et al. (2004), Fan et al. (2007), and Jiang et al. (2010), control for these two variables in studying stock price behavior in China.

The above metrics (1)–(3), namely, market-adjusted, portfolio-adjusted, and *Size-B/M* matched control returns, are close to those used in Ogneva and Subramanyam (2007) and Kausar et al. (2009). For metric (4), the *B/M-Size* matched control returns, we reverse the order of *Size* and *B*/*M* in defining comparable stocks, as compared with metric (3), the *Size-B/M* matched control returns. We do so because there is a lack of theoretical guidance on the matching order of the *Size* and *B*/*M* variables. Using the *Size-B/M* match method, an MAO stock would be closely matched with a non-MAO stock by *B*/*M* but may not be perfectly matched by *Size* (the caliper allowed is ±30%). Changing the order of matching ensures a close match by *Size* but at the cost of precision of matching by *B*/*M*. We therefore use both to ensure that the results are not biased due to the matching order. The rationale for metric (5), i.e., *F-Score* matched control returns, is that MAO recipients are significantly different from non-MAO recipients in $F\text{-}Score_t$, as we will show later. Being correlated with financial distress risk, $F\text{-}Score_t$ could be a relevant risk factor not completely captured by *Size* or *B*/*M* variables.

For returns to stock that are delisted during the holding period of $t + 1$, we compute the post-delisting returns as follows. For the market-adjusted returns measurement, returns earned by delisted firms are represented by the equivalent monthly market returns, i.e., assuming that proceeds from selling delisted stocks are reinvested in the market portfolio. For the portfolio-adjusted returns or the matched control returns, we replace returns to delisted firms with those to the *Size* and *B*/*M* portfolio to which the delisted stocks belong, i.e., assuming the reinvestment of delisted stocks in portfolios that are comparable to the delisted stocks in the *Size* and *B*/*M* characteristics. As we discuss later in section 6.1, delisted stocks in China are actively traded even in the final month before delisting, thus the above reinvestment assumption may not be unreasonable. We also examine whether results are sensitive to setting delisting returns equal to –100% in that section.

For all of the above return metrics, we report results on both pooled and annual samples. The annual sample mean is the simple average of the annual mean abnormal returns, and the t-statistics are based on the time-series variation of the annual mean returns (Fama and MacBeth 1973). This procedure adjusts the cross-sectional dependence of stock returns among observations because the inferences are based on the yearly mean returns. More importantly, the time-series results help to assess whether MAO stocks are consistently associated with future abnormal returns during the sample period. If "abnormal" returns are caused by some unspecified risk factors, the frequency of positive and negative yearly returns should be roughly the same, although the average from the pooled sample could be non-zero. The evidence based on the annual samples is thus particularly useful considering the possibility that some unknown risk factors are not adequately controlled for by researchers (Bernard et al. 1997).

3.2.3. The factor model-based abnormal returns

Both Ogneva and Subramanyam (2007) and Kausar et al. (2009) use the Fama and French (1993) three-factor model and Carhart (1997) four-factor model to estimate expected returns. A pre-event estimation

period (e.g., up to 60 months before the receipt of GCOs in Kausar et al. 2009) should be used to estimate the factor model coefficients to be applied to the holding period. Because many of our sample firms have a short listing history, this method leads to substantial sample attrition and is thus not feasible. As an alternative, we use the calendar-time portfolio approach advocated by Fama (1998). Specifically, portfolios are formed each month from May 1996 through April 2013 by sorting all firms according to the types of audit opinions received in the previous fiscal year. We then regress the portfolio excess monthly returns on the Fama and French (1993) or Carhart (1997) model factors as follows:

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + \varepsilon, \quad (3)$$

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + u_p UMD_t + \varepsilon, \quad (4)$$

where R_p is portfolio raw returns, R_f is risk-free returns, R_m is the market returns, and *SMB*, *HML*, and *UMD* are the returns on zero-investment factor-mimicking portfolios for size, book-to-market, and momentum factors, respectively. We follow Fama and French (1993) to construct the SMB_t and HML_t factors and Carhart (1997) to construct the UMD_t factor, but using Chinese data.[15] To the extent that factor-mimicking portfolio returns capture returns to risk, time-series variation in risk is controlled for in regression models (3) and (4), and the intercepts, α_p, represent the abnormal returns to the portfolios. This calendar-time portfolio approach also corrects for the potential cross-sectional dependence in returns across firms due to the clustering of similar events in calendar time (Mitchell and Stafford 2000).

4. Sample

The sample period is from 1995 to 2011. Modified audit opinions (MAOs) were rare in China before 1995. In December 1995, the Chinese Institute of Certified Public Accountants (CICPA) issued the first batch of CIAS, which specified the responsibility of auditors and the content and format of audit reports. As a result, MAOs increased substantially in that year (DeFond et al. 2000). Data for the types of audit opinions are collected from audit reports published in the companies' annual reports. We determine the underlying reasons for the MAOs by reading these audit reports. If the auditors explicitly mention issues related to firms' financial troubles or operating problems, we then code the audit opinions as a GCO. Other MAOs are treated as violations of GAAP or disclosure rules, i.e., GAAP/DISC-type modification. Appendix 1 shows frequency distribution of specific reasons underlying MAOs during our sample period. Financial statement and stock price data are retrieved from the China Stock Market and Accounting Research Database (CSMAR). We compile accounting restatement data by manually identifying observations that correct prior misstated financials from the "Material Accounting Errors" section of financial statement footnotes.

[15] See Jiang et al. (2010) for a similar application of the Fama and French (1993) three-factor model in China.

Beginning with the population of Chinese A-share firms between 1995 and 2011 on CSMAR's financial statement database (n = 21,471), we delete: (a) 249 observations in the financial industry; (b) 629 observations with missing current financial statement or stock market data; (c) 159 observations with missing one-year-ahead financial statement or stock market data; and (d) three observations in industry-years with less than two firms (and thus impossible to normalize variables when computing *F-Score*). The final sample comprises 20,431 firm-year observations for 2,383 unique firms. Because we use one-year lagged and up to three-year-ahead data, the actual financial statement (stock return) data used in this study run from 1994 to 2014 (May 1995 to April 2015).

We drop firms with missing one-year-ahead data, which is mainly due to the delisting or suspension from trading of their stocks by the stock exchanges. During our sample period, 77 companies' stocks were delisted. Among these, 29 were delisted due to merger and acquisition activities or the listing of their parent firms' stocks, and the remaining 48 were delisted due to poor financial performance. For these 48 companies, all but one had received MAOs in the final year before the delisting. The delisting of these 48 companies, however, does *not* materially affect our results. According to the Shanghai and Shenzhen Stock Exchanges' trading rules, a firm's shares are suspended from trading when it has reported losses for three consecutive years (which is the condition for delisting). Most of the delisted firms' shares are not traded after they publish the final set of financial statements before delisting and are thus excluded from the portfolios formed at the beginning of May of year t + 1. Only 11 delisted firms' shares are traded between the portfolio formation date and the delisting month and are included in the MAO portfolios.[16] In section 6.1, we further consider how returns to these delisted stocks influence our findings.[17]

Table 1 shows the distribution of our sample by time and types of audit opinions. The sample size increases almost monotonically from 282 in 1995 to 2,269 in 2011, reflecting the rapid growth of stock markets in China. In total, 1,469 firm-years, or 7.19% of all observations received GAAP/DISC MAOs, and auditors issued GCOs to 712 or 3.48% of firm-year observations.[18]

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[16] Also note that excluding delisted stocks from the MAO portfolios if stocks are not traded after the publication of final set of financial statements is entirely consistent with Kausar et al. (2009: p. 215); that is, they exclude firms that "are delisted in the GC month" from the sample.

[17] During our sample period, a total of 12 firms had their stocks cross-listed in China's and U.S. stock exchanges. Among these, one is in the financial industry (China Life Insurance) and not included in our sample. For the 107 firm-year observations of the 11 non-financial cross-listed firms, they all received clean audit opinions. These cross-listed observations account for about 0.58% of observations in the "Clean" group. Unsurprisingly, dropping these observations from the sample has little effect on our results.

[18] The numbers of observations under the "Clean", "GAAP/DISC", and "GC" columns do not add up to the total sample size because 289 observations' audit reports are modified by their auditors for both GAAP/DISC- and GC-related reasons. The frequency of GAAP/DISC MAOs peaked in 1999 and 2000, and then started a declining

5. Empirical results

5.1. Audit opinion modifications and financial performance

Table 2 displays the mean values of *F-Score* and its components in both t and $t + 1$ by three groups formed by audit opinion type. We winsorize all of the continuous component variables, *ROA*, *OCF*, *Leverage*, *Liquidity*, *Gross Margin*, and *Turnover*, at the bottom and top percentiles of their respective annual distributions before normalization. The *F-Score*, based on the normalized variables, is not winsorized. In Panel A, the mean values of $F\text{-}Score_t$ for the Clean, GAAP/DISC, and GC groups are 1.485, 0.346, and –0.562, respectively. Given the standard deviation of 1.086 for $F\text{-}Score_t$ (untabulated), the mean values of MAO groups' $F\text{-}Score_t$ are lower than that of the Clean group by more than one standard deviation. Such differences are significant at the 1% level, as the t-tests suggest. This also holds for all the components of $F\text{-}Score_t$. Therefore, firms that have received GAAP/DISC or GC modifications from their auditors underperform those with clean opinions. In Panel B, we examine whether audit modifications help to predict future financial performance. Both the GAAP/DISC and GC groups continue to underperform the Clean group in year $t + 1$. Again, the differences between the GAAP/DISC or GC and Clean groups in the means of $F\text{-}Score_{t+1}$ and all of its components are significant in the t-tests.

The univariate evidence lends initial support to H1 that audit opinions predict firms' future financial performance. We estimate the following regression models to control for other factors that covary with audit opinions and may affect firm performance:

$$F\text{-}Score_{t+1} = \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \gamma_1 F\text{-}Score_t + \delta \boldsymbol{C} + \zeta_t + \eta_k + \varepsilon, \quad (5a)$$

$$\begin{aligned} F\text{-}Score_{t+1} = {} & \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \gamma_1 F\text{-}Score_t \\ & + \gamma_{11} GAAP/DISC_t \times F\text{-}Score_t + \gamma_{12} GC_t \times F\text{-}Score_t \\ & + \delta \boldsymbol{C} + \zeta_t + \eta_k + \varepsilon. \end{aligned} \quad (5b)$$

The dependent variable in these regressions is *F-Score* in year $t + 1$. We control for the effect of current performance on future performance by including $F\text{-}Score_t$. If financial performance is entirely persistent, then the coefficients on $F\text{-}Score_t$, γ_1, should be around one, i.e., $F\text{-}Score_t$ perfectly predicts $F\text{-}Score_{t+1}$. $GAAP/DISC_t$ and GC_t are indicators for firms that receive GAAP/DISC MAOs and GCOs from auditors, respectively. Negative coefficients on these indicators would suggest that MAOs are followed by worse performance in the next period. In model (5b), we further test whether MAOs alter

path in 2001. As will be discussed later, in December 2001 the CSRC implemented a new regulation to tighten its grip on firms receiving GAAP/DISC MAOs. After two years of the regulatory efforts, listed firms were much more willing to work with auditors to resolve matters that would otherwise lead to GAAP/DISC MAOs (CICPA 2004). As a result, GAAP/DISC MAOs have declined sharply after 2002.

the persistence of *F-Score*. Firms' accounting/disclosure practices or going concern ability as doubted by the auditors can also affect how performance evolves over time, making MAO recipients' *F-Score* less persistent. Therefore, coefficients on the interaction between $F\text{-}Score_t$ and $GAAP/DISC_t$ or GC_t are expected to be negative in model (5b).

In both regressions, we control for $\boldsymbol{C}$, a vector of factors that covary with both the dependent variable and MAO issuance. Fama and French (1995) report that high B/M and/or small firms have worse earnings performance and are more likely to be financially distressed in the future. Contemporaneous stock returns capture investors' expectation for future performance and may also influence auditors' reporting decisions. We therefore include B/M, firm size, and contemporaneous stock returns as control variables.[19] Consistent with Sloan (1996), we transform these variables to their annual decile rankings to reduce the possible undue influences of extreme values and accommodate a monotonic non-linear relationship between future performance and these variables. The ranks, denoted by the R(•), range from 0 to 9 and are scaled by 9. Chen and Yuan (2004) and Haw et al. (2005) find that Chinese firms often manipulate earnings to qualify for stock rights offerings, and Chen et al. (2001) find that auditors are more likely to issue MAOs to such earnings manipulators. We therefore include an indicator, EQO_t, for observations that have equity offerings in year t to capture this effect. The stocks of a listed firm that has incurred losses in the previous three years should be delisted by the stock exchange, according to China's *Company Law* and related regulations. To warn investors about the delisting risk, stock exchanges assign the Special Treatment (ST) mark to a firm that has had two consecutive annual losses or a negative book value of equity. As firms that are close to being delisted are riskier, auditors are more likely to issue MAOs to such clients. We use a dummy variable, $Delist\ Risk_t$, to indicate firms that have reported losses in both years t and $t-1$, or their shareholders' equity is negative at the end of year t. Loans to related parties are often used by Chinese firms to channel resources from public firms to related parties, a practice that triggers the issuance of MAOs by the auditor (Jiang et al. 2010). We use variable $RP\ Loan_t$, defined as the ending balance of loans to related parties, scaled by ending total assets, to control for this effect. Chen et al. (2001) find that auditors are more likely to issue MAOs to firms with a longer listing age. We add Age_t, defined as the number of years a company has been listed by end of year t, as another covariate. Large auditors, including the international Big N, in China also have a higher propensity for MAO issuance due to their better quality (DeFond et al. 2000; Wang et al. 2008; Mo et al. 2015). We control for this effect by variables $Big\ N_t$ and $Auditor\ Size_t$. The former is an indicator for Big N auditees and the latter is defined as the annual percentile rankings of audit firm size in terms of total audited assets in the listed sector.[20] Finally, we

[19] We report regression results based on portfolio-adjusted stock returns. The major findings are not sensitive to other return metrics described in Section 3.2.2.

[20] We use a continuous ranking variable rather than a dichotomous one due to the lack of consensus over the definition of large audit firms in the China-based auditing literature. Same as Guan et al. (2016), we measure audit

include year and industry indicators, denoted as ζ_t and η_k, respectively, to control for any possible time or industry effects on performance.

Panel A of Table 3 shows the descriptive statistics for independent variables used in models (5). Compared with the Clean group, the GAAP/DISC or GC group has lower *B*/*M*, smaller *Size*, inferior stock return performance, and a higher *Delist Risk*, is less likely to conduct equity offerings (*EQO*), and have higher *RP Loan* balances. The differences in the abovementioned variables are all significant at the 1% level in both the mean and median values. GC firms are significantly older than the Clean firms in terms of their listing *Age*, but the difference between the GAAP/DISC and Clean groups in *Age* is insignificant. Finally, MAO firms are significantly less likely to be audited by the *Big N* auditors, although they only differ slightly from Clean firms in *Auditor Size*. The above differences between MAO and Clean firms necessitate the control of these variables in regressions.

Results of the above two regression models are reported in Table 4, Panel A. We cluster the standard errors at the firm level to correct for biased standard errors due to cross-correlated residuals in panel data regressions (Petersen 2009). Consistent with H1 that MAOs are associated with worse future performance, the coefficients on $GAAP/DISC_t$ and GC_t are significantly negative at the 1% level in both Columns (1) and (2). The coefficients on $F\text{-}Score_t$, estimated at around 0.50, reveal that *F-Score* follows the well-documented mean-reversion pattern of financial performance (Nissim and Penman 2001). Importantly, in Column (2), we find that the interaction terms between $GAAP/DISC_t$ or GC_t and $F\text{-}Score_t$ are significantly negative. Therefore, apart from a direct impact on firms' future performance, the presence of both types of MAOs negates the informativeness of current performance about future performance. The negating effect of MAOs may reflect MAO-recipient firms' earnings management: earnings managed upwards are less persistent; earnings resulting from big-bath strategy tend to reverse in the future. In these scenarios, current performance is less predictive of future performance.

Based on Column (2) regression estimates, we estimate the negative impact of MAOs on a firm's future performance as follows. An average GAAP/DISC MAO recipient's $F\text{-}Score_{t+1}$ is predicted to be 0.534 [= 0.587 – 0.208 + (0.507 – 0.056)*0.346, where 0.587 and –0.208 are regression intercept and the coefficient on $GAAP/DISC_t$, respectively, 0.507 and –0.056 are the coefficients on $F\text{-}Score_t$ and $GAAP/DISC_t \times F\text{-}Score_t$, respectively, and 0.346 is the mean $F\text{-}Score_t$ for this group]. For the same firm that has received a clean opinion, its $F\text{-}Score_{t+1}$ is estimated at 0.762 [= 0.587 + 0.507*0.346]. The negative effect of GAAP/DISC MAO on firms' future performance is thus –0.228 (= 0.534 – 0.762). Using the same procedure, the effect of GC MAO is estimated at –0.543.[21] Together, these results

firm size by the annual percentile rankings as Chinese audit market grows substantially during our sample period, rendering the raw firm size measures incomparable over time. This ranking includes Big N.

[21] It is interesting to note that the negative coefficients on $GAAP/DISC_t \times F\text{-}Score_t$ and $GC_t \times F\text{-}Score_t$ suggest that an MAO firm taking a negative value in $F\text{-}Score_t$ would actually perform better in $t + 1$, other things being equal.

support MAOs' incremental information regarding future performance prediction.[22]

Regarding the control variables, consistent with expectation, book to market ratio, R(*B*/*M*), is negatively associated with future firm performance, while firm size, R(*Size*), and contemporaneous stock returns, R(*PARET*), are positively linked to future firm performance. We find that firms subject to *Delist Risk* have better future performance, whereas firms with *EQO*, more outstanding *RP Loan*, or a longer listing *Age* underperform in the future.[23] Although *Auditor Size* is generally not related to clients' future performance, *Big N* clients have better future *F-Score*, likely because Big N auditors tend to select financially strong clients to reduce audit risks. At the bottom of the table, we compare the coefficient differences between $GAAP/DISC_t$ and GC_t. For both models, the coefficients on GC_t are significantly more negative than those on *GAAP/DISC*, suggesting that GCOs are more severe than GAAP/DISC MAOs in terms of clients' future performance. We however find no significant difference in the coefficients between $GAAP/DISC_t \times F\text{-}Score_t$ and $GC_t \times F\text{-}Score_t$, implying that two types of MAOs similarly reduce the persistence of *F-Score*.

We also use *Altman Z-Score* (Altman et al. 2010) as an alternative performance measure.[24] Based on a sample of Chinese listed firms, Altman et al. (2010) show that such a score helps predict firms' financial distress. A higher *Altman Z-Score* means that firms are financially healthy and thus more creditworthy. As reported in Panel B of Table 3, the mean and median values of *Altman Z-Score* in *t* or *t* + 1 for GAAP/DISC and GC groups are significantly worse than those of Clean group. The regression results based on the *Altman Z-Score* are reported in Column (3), Panel A of Table 4. As evidenced by the significantly negative coefficients on $GAAP/DISC_t$ and GC_t, two MAO groups of firms have

However, plugging a negative $F\text{-}Score_t$ within the reasonable range into the regression model, as outlined above, we can see that MAO recipients still have lower $F\text{-}Score_{t+1}$ than other firms. This is because the large negative coefficients on the main effect of $GAAP/DISC_t$ or GC_t outweigh the improvement in $F\text{-}Score_{t+1}$ due to MAO recipients' weaker association between current and future F-Scores.

[22] We also include an interaction term, $GAAP/DISC_t \times GC_t$, indicating 289 firm-years with both types of MAOs, to the regression models in Columns (1) and (2) of Panel A, Table 4. We find no evidence for the interactive effect between the two types of MAOs in terms of the predictive power for future performance. Of note is that the estimates for other variables do not change materially.

[23] That *Delist Risk* is associated with higher future *F-Score* may appear to be counterintuitive. For observations with *Delist Risk* equal to one, the mean values of $F\text{-}Score_t$ and $F\text{-}Score_{t+1}$ are –0.540 and 0.251, respectively. Thus, on average, such firms are able to turn around eventually despite their poor performance in the current and previous years. This explains why the coefficient on *Delist Risk* is significantly positive.

[24] Specifically, following Altman et al. (2010), we calculate *Altman Z-Score* as: $0.517 - 0.460x_6 + 9.320*x_7 + 0.388*x_8 + 1.158x_9$, where x_6 is the asset liability ratio (total liabilities/total assets), x_7 is the rate of return on total assets (net profit/average total assets), x_8 is the ratio of working capital to total assets (working capital/total assets), and x_9 is the ratio of retained earnings to total assets (retained earnings/total assets).

significantly worse *Altman Z-Score* in the next period. Moreover, GC_t has a stronger effect on forward *Altman Z-Score* than $GAAP/DISC_t$, as the significant difference between their coefficients suggests. Different from the results based on *F-Score*, here we do not find that the presence of MAOs alters the persistence of *Altman Z-Score*.

While the above evidence supports MAOs' predictive power, it remains a question whether MAOs, as a warning signal for future poor performance, are sufficiently accurate. To assess the MAO accuracy, we sort firms into percentile groups by $F\text{-}Score_{t+1}$. The percentages of GAAP/DISC, GC, and total MAOs for each group are plotted in Figure 1. In the far-left group (where $F\text{-}Score_{t+1}$ is lowest), over 60% of observations received MAOs from their auditors in year *t*. The percentages of MAOs drop dramatically as one moves to the higher $F\text{-}Score_{t+1}$ percentile groups and approach zero in the far-right percentile group. This pattern holds for both GAAP/DISC and GC MAOs. We conclude that Chinese auditors exhibit a reasonable degree of accuracy in issuing MAOs if benchmarked against clients' future realization of financial performance.[25]

Apart from predicting future financial performance, MAOs can also provide other information to value-minded investors. As noted before, MAOs are often issued due to financial reporting irregularities, which can lead to poor performance as overstating performance by unsound accounting practices is likely to reverse in the future. Moreover, the presence of questionable business transactions or possible violation of laws and regulations, the often-cited MAO reasons, increases valuation uncertainty. After Guan et al. (2016), we identify material misstatements from accounting restatements in subsequent years. *Upward Misstatement* and *Downward Misstatement* are indicators to denote cases where earnings or shareholders' equity in the current year are subsequently corrected downward and upward, respectively.[26] To examine how MAOs are related to questionable accounting practices or business transactions, we identify observations that are subsequently sanctioned by the CSRC, MOF, or stock exchanges, following He et al. (2017). Two indicators, *Accounting-related Misconducts* and *Other Misconducts*, denote cases for corporate misconducts related to accounting frauds or irregularities and non-accounting issues, respectively.[27] Lastly, as noted before, stock exchanges can assign the ST mark

[25] As per Carson et al. (2013), from 2000 to 2010, 60.1% of U.S. firms that file for bankruptcy receive GCOs one year prior to bankruptcy filing, suggesting a Type II error rate of 39.9%; the Type I error rate is about 15.7% as auditors have issued GCOs to this percentage of firms that do not file for bankruptcy in the 12 months following audit reporting dates. Relatively speaking, both types of error rates are likely lower in China—as discussed early, among the 48 delisted companies, all but one received MAOs in the final year before delisting; based on the percentage of Chinese firms that receive GCOs (see Table 1), the upper bound of Type I error is about 3.6%.

[26] To focus on accounting irregularities, we exclude restatements triggered by changes in accounting standards, firms' mergers and acquisition transactions, or other reasons unrelated to intentional misstatements.

[27] Specifically, *Accounting-related Misconducts* include the following categories of corporate misconduct compiled by CSMAR: (1) fabricating profits; (2) overstating assets; (3) delaying disclosures; (4) false statements;

to a firm and delist its stock. The trading of ST stocks is subject to a daily price up/down limit of 5%, and delisting causes wealth loss to investors. Both expose investors to high risks. To examine whether MAO stocks are more likely to suffer such penalties, we use *ST/Delist* to indicate firms whose stocks are marked as ST or delisted by stock exchanges in $t + 2$.[28]

The descriptive statistics for the above variables are shown in Panel B of Table 3, where we find that MAO stocks have significantly higher incidence of all these events than the Clean group by wide margins. The logit regression results are reported in Panel B of Table 4. We find that GAAP/DISC MAOs are associated with significantly higher likelihood of all events considered except *Downward Misstatement*. As for GCO recipients, they are more likely to have *Downward Misstatement* and experience *ST/Delist* events. We find no evidence suggesting that GCO companies are more likely to manage earnings upward or be punished by regulators for accounting-related or other misconducts. This is not surprising as firms with GC problems tend to take big-bath accounting and regulators are more concerned with income-increasing earnings manipulation (Watts and Zimmerman 1986).

Taken together, findings in this subsection support H1 that audit opinions have the power to predict future underperformance, as well as misreporting and misconducts that are discovered *ex post*, and outcomes such as ST or delisting, all of which are adverse to the investors. The predictive power likely stems from auditors' private knowledge about their clients' operations and financial health. We next study how the market exploits the value-relevant information in audit opinions.

5.2. Market reaction to audit opinion modifications

Figure 2 plots the mean buy-and-hold market-adjusted returns (BHMARs) from trading days –15 to +15, where day 0 is the date when annual reports are announced. The BHMARs to the Clean group during the announcement window are largely flat, although there is a small price run-up before day –1 and a subsequent drop around day 0. As for the GAAP/DISC and GC groups, there is a strong negative reaction by the market up to day +2, after which BHMARs largely level off. Untabulated statistics suggest that the means of BHMARs up to day +2 are 0.36%, –2.23%, and –4.23%, respectively, for the Clean, GAAP/DISC, and GC groups.[29]

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(5) material omissions; (6) expropriation of corporate assets by the large shareholders; and (7) fraudulent IPOs. Misconducts such as market manipulation, insider trading, or violations of laws and regulations that are not directly related to financial presentation are classified as *Other Misconducts*.

[28] We use $t + 2$ because ST/delisting decisions in year $t + 2$ are based on firm accounting performance in year $t + 1$ and therefore it is appropriate to employ the status in year $t + 2$ to examine the informativeness of audit opinions in year t. In defining delisting, we exclude "voluntary" delisting cases caused by merger and acquisition activities or the listing of their parent firms' stocks.

[29] The sample size for market reaction test is smaller than that for the full sample due to additional data used in

Although the evidence from Figure 2 is consistent with H2 that investors react negatively to both types of MAOs, it is preliminary for two reasons. One is that a large portion of negative returns are observed well before the actual announcements of annual reports, suggesting the need to control for pre-disclosure information that may preempt market reactions to MAOs when announced. The other is that, as previously shown, MAOs are associated with poor financial performance that is disclosed concurrently with audit reports. We use a multivariate regression model to estimate the market reactions to MAOs after controlling for confounding information as follows:

$$BHMAR_{[0,+2]} = \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \delta \boldsymbol{C} + \zeta_t + \eta_k + \varepsilon, \quad (6)$$

where $BHMAR_{[0,+2]}$ is the buy-and-hold market-adjusted returns from day 0 to +2;[30] $\boldsymbol{C}$ represents variables that are likely to covary with the dependent variable and MAOs; and other variables are defined as above. We include the following covariates in $\boldsymbol{C}$. MAO firms usually have a longer reporting lag than other firms (Haw et al. 2003). We use *Delay*, the time lag between fiscal year end and the annual report announcement date, to control for this effect. *LagRET* is the stock returns from the announcement day of the previous annual reports to the start of the event window. It controls for information innovation in audit opinions and fundamentals that could be released to the market through other channels before the annual report announcements (Brown et al. 1987). Since 2000 Chinese firms need to provide warnings for earnings decline or loss incurrence before the formal announcement of annual results. We use an indicator, *Warnings*, for the presence of such earnings warnings. We expect that information captured by *Delay*, *LagRET*, and *Warnings* is likely to preempt information contained in MAOs. To capture earnings surprise, we use $\Delta Core\ OI_t$, the change in core operating income from the previous to current year.[31]

The descriptive statistics for additional variables used in model (6) are reported in Panel C of Table 3. We find that both MAO groups have lower $BHMAR_{[0,+2]}$, longer reporting *Delay*, more negative

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the analysis. For firms that were delisted by the end of April in $t + 1$, the announcement of annual results immediately triggered the conditions for delisting, and trading of their stocks was halted. Without stock return data during the earnings announcement windows, these firms are excluded from this analysis. Therefore, our results for testing H2 are not biased by possible negative reactions to delisting *per se*.

[30] Conceptually, the window length should be set to maximize the power of tests for detecting the effects of events of interest, which is largely an empirical issue (MacKinlay 1997). Our choice is supported by Figure 2, where we observe that negative market reactions to MAOs continue until day +2.

[31] We do not use consensus analyst forecasts to measure earnings surprise because financial analyst profession emerged in China in early 2000s while our sample period begins from 1995. Moreover, analyst coverage for MAO companies is quite thin, with only 17.02% of MAO recipients having at least one analyst following between 2001 and 2011 (by comparison, 62.26% of non-MAO firms are followed by analysts during the same time period). We therefore use the random-walk model to measure earnings surprise.

LagRET, more frequent *Warnings*, and lower Δ*Core OI* than the Clean group. The regression results are presented in Table 5. For the baseline regression in Column (1), the coefficients on $GAAP/DISC_t$ and GC_t are both negative and significant at the 5% and 1% levels, respectively. The $Delay_t$ variable is not loaded significantly. The coefficients on $LagRET_t$ and $Warnings_t$ are significantly negative and positive, respectively, suggesting that firms with more negative pre-announcement news experience positive stock returns during the announcement window. This pattern may reflect the announcement premiums following the resolution of uncertainty upon announcement of the results (Ball and Kothari 1991; Aboody et al. 2010). With a significantly positive coefficient, $\Delta Core\ OI_t$ captures the effects of earnings surprise on share prices during the announcement windows. In Column (2), we further add $F\text{-}Score_t$ to examine whether the score provides incremental information. The significantly positive coefficient on $F\text{-}Score_t$ suggests that stock returns during the announcement window are higher for firms with overall performance stronger than peers in the same industry-year. Importantly, our inference regarding the variables of interest, $GAAP/DISC_t$ and GC_t, remains the same. The F-tests at the bottom of the table suggest that the coefficients on GC_t are significantly more negative than those on $GAAP/DISC_t$ in both specifications. Therefore, the market interprets GCOs as more striking than GAAP/DISC MAOs when valuing stocks.[32]

As Figure 2 shows, MAO stocks experience large negative returns before the window [0, +2], implying that investors may have anticipated MAOs before the actual announcements (e.g., by the absence of disclosing financial reports on time). To see how this reduces the test power for detecting market reactions to MAOs, we perform two analyses. The first considers analyst coverage. Firms with greater analyst following should have richer information environment, reducing market reactions to MAOs during the announcement window. As mentioned earlier, analyst coverage for MAO firms is generally thin. We therefore partition the sample by $ANACOV_t$, an indicator for observations that are followed by at least one analyst. As CSMAR's analyst-coverage data start from 2001, the analysis is based on the period of 2001–2011. Results for the regression with the $ANACOV_t$ variables are reported in Column (3). The coefficients on *ANACOV*'s interaction with $GAAP/DISC_t$ and GC_t are both positive, but only the one with GC_t is significant. In untabulated F-tests, we find that the coefficients sums of either MAO variable and their respective interaction with $ANACOV_t$ are not significantly different from zero. The evidence is consistent with the theory that analysts' information production preempts information formally disclosed by the firms (Shores 1990).

In the second analysis, we first estimate the probability that the firm will receive an MAO using information available to the investors before the announcement of its annual report. The details of this estimation are outlined in the Appendix 2. The estimated probabilities for GAAP/DISC MAOs and

[32] When we include the interaction term, $GAAP/DISC_t \times GC_t$, in Column (1) of Table 5, as described in footnote 22, we find no evidence that receiving both types of MAOs simultaneously affects investors' interpretation.

GCOs, denoted as Prob($GAAP/DISC_t$) and Prob(GC_t), respectively, are interacted with $GAAP/DISC_t$ and GC_t. In results reported in Column (4) of Table 5, the interaction terms are loaded with significantly positive coefficients and the main effect coefficients of $GAAP/DISC_t$ and GC_t become more negative. Therefore, the market reacts less negatively to MAOs, if the pre-announcement information implies a looming MAO.[33] Considering that the estimated probabilities for MAOs may contain errors in measuring the market's expectation, which attenuates the magnitude of coefficients, our regression estimates likely understate the extent of market reactions to MAOs.

We next investigate how market reactions vary by the severity of MAOs. In December 2001, the CSRC implemented a new regulation, stipulating that: (a) a firm's stocks could be suspended from trading if its auditor has issued an MAO for outright violation of GAAP or disclosure rules; (b) the CSRC may investigate into related matters if necessary; and (c) for MAOs caused by other reasons, the board of directors should explain related matters and take actions to eliminate their impacts (CSRC 2001). Therefore, GAAP/DISC MAOs are likely to have more severe consequences following this regulation. To test this, we interact $GAAP/DISC_t$ and GC_t with $Post2001_t$, an indicator for observations in or after year 2001. In Column (5) of Table 5, we find that the main effect of $GAAP/DISC_t$ is not significant while its interaction with $Post2001_t$ is significantly negative. Therefore, the negative reactions to GAAP/DISC MAOs are concentrated in the post-2001 period. For GCOs, we find no significant difference between the pre- and post-2001 period, confirming the intuition that the 2001 regulation pertains only to the violation of GAAP or disclosure rules.[34]

We further consider how MAOs interact with the presence of earnings manipulation incentives to influence market's pricing. Specifically, a company's stocks may receive the ST mark or be delisted if it reports losses consecutively. We use indictors, *Loss* (for firms that report losses for the current year), *Loss2* (for firms that report losses for both the previous and current years), and *SP* (for firms that report small profits, i.e., $0 < ROA < 0.01$) to denote three groups of observations. For such observations, accompanying MAOs may suggest that earnings management is more severe than usual or there is

[33] For GAAP/DISC and GC MAO recipients, the mean values of the estimated probability for receiving respective MAOs are 0.364 and 0.451 (untabulated). Accordingly, the short-window stock returns for a firm with sample-mean probability of receiving a GAAP/DISC MAO the is –0.0037 (= –0.0052 – 0.0088*0.364 + 0.0127*0.364), where –0.0052, –0.0088, and 0.0127 are coefficient estimates on $GAAP/DISC_t$, Prob($GAAP/DISC_t$), and $GAAP/DISC_t$×Prob($GAAP/DISC_t$), respectively. The joint F-test for the coefficient sum is 3.15 ($p = 0.076$). Likewise, for a firm with average probability of GC-type MAOs, the stock returns are estimated at –0.0162 ($F = 29.45$, $p < 0.001$). Therefore, although market reactions are weaker for firms with a higher probability of receiving MAOs, the realized returns to an average firm, for either type of MAOs, are reliably negative.

[34] The coefficient sums, $GAAP/DISC_t + GAAP/DISC_t \times Post2001$ and $GC_t + GC_t \times Post2001$, are both negative, with the F-values being 9.51 ($p = 0.021$) and 21.30 ($p < 0.001$), respectively. Therefore, the average market reactions for both types of MAOs are significantly negative during the post-2001 period.

greater uncertainty due to possible regulatory penalties. We therefore expect the market reactions to MAOs to be stronger in such cases. In Column (6) of Table 5, we find that the coefficients on $GAAP/DISC_t \times Loss_t$ and $GAAP/DISC_t \times SP_t$ are significantly negative, while the main effect of $GAAP/DISC_t$ is not significant. Therefore, the negative implications of GAAP/DISC MAOs are present only if the firm reports a loss or a small profit, suggesting that investors are more concerned with possible earnings manipulation or heightened uncertainty involved in such cases. As for GCOs, we find no evidence suggesting that market reacts more negatively in the presence of *Loss* or *SP*. For *Loss2*, i.e., the presence of losses for two consecutive years, its interaction with $GAAP/DISC_t$ or GC_t is not loaded significantly although the main effect, estimated at –0.0343, is highly significant. We note that both GCOs and continuous losses are considered having severe economic consequences, with GCOs suggesting auditors' doubts over firms' financial viability while continuous losses implying a substantial increase in delisting risk. The severity of these events renders the information content of GC_t and $Loss2_t$ less contextual, i.e., investors react negatively to GCOs without considering whether the opinions are accompanied by earnings manipulation and the market responses to the continuous losses are uniformly negative regardless of audit opinions.[35]

To summarize, the analysis of market reaction to audit opinions suggests that MAOs have a negative effect on share prices, supporting H2. Moreover, the market's reactions to GAAP/DISC MAOs sensibly vary with variables that capture the severity of problems associated with clients. It thus appears that Chinese investors overall do understand the value implications of MAOs and use them accordingly in their investment decisions.

5.3. Post-MAO stock returns

5.3.1. Univariate analysis

Although the market reacts negatively to MAOs, it remains possible that the market underreacts to the information that is contained in current audit reports. If so, the long-run post-MAO stock returns are expected to be negative, as H3 suggests. We first perform the portfolio test to examine the predictability of future returns by audit opinions.

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[35] For firms that have incurred losses and received GAAP/DISC-type MAOs, the market reaction is estimated as the sum of the coefficients on $GAAP/DISC_t$, $Loss_t$, and $GAAP/DISC_t \times Loss_t$, which is –0.0091 ($F = 3.80$, $p = 0.051$). Using the same method, we arrive at the following estimates of short-window returns for other scenarios:
GC-type MAOs with $Loss_t$: –0.0145 ($F = 5.12$, $p = 0.024$); GAAP/DISC-type MAOs with $Loss2_t$: –0.0260 ($F = 10.43$, $p = 0.001$); GC-type MAOs with $Loss2_t$: –0.0492 ($F = 25.27$, $p < 0.001$); GAAP/DISC-type MAOs with SP_t: –0.0117 ($F = 8.27$, $p = 0.004$); and GC-type MAOs with SP_t: –0.0178 ($F = 4.37$, $p = 0.037$).
Thus, although the degree of market reactions varies by different scenarios, the stock returns to both GAAP/DISC- and GC-type MAOs are predominantly negative during the announcement windows.

Table 6 displays the 12-month post-announcement abnormal returns, using five metrics, to the three portfolios formed by the audit opinion types. The results based on buy-and-hold and cumulative returns are shown in Panels A and B, respectively. In each panel, we report results based on the pooled and annual samples. Recall that annual sample tests are based on the time-series of the yearly mean returns. This corrects the cross-sectional dependence among observations (Fama and MacBeth 1973) and evaluates whether some unspecified risk factors influence the results (Bernard et al. 1997).

The overall evidence in Table 6 hardly supports H3 on return predictability by MAOs. The strongest evidence of negative returns to MAOs is from the reference portfolio approach in Column (2) of Panel A for the GAAP/DISC group, when returns are computed as buy-and-hold returns. The mean returns are –0.051 (t = –1.79) and –0.055 (t = –1.57), respectively, for the pooled and annual samples. However, the magnitude of these returns declines when cumulative returns are used in Panel B, suggesting that part of the results in Panel A are caused by more negative returns during the early months of the holding period.[36] To see the economic significance of these results, we benchmark against the return distributions for the entire sample. For the market- or portfolio-adjusted return variables, the interquartile range is above 0.30 and the standard deviation is over 0.50 (untabulated). An abnormal return of about –0.05 is unlikely to be very significant from an economic standpoint. The returns to the GC portfolios are more variant compared with those to the GAAP/DISC portfolios. GC portfolios actually realize significantly positive returns when abnormal returns are computed as market-adjusted, *Size-B/M*, or *F-Score* matched control returns for the pooled sample. Nevertheless, the magnitudes of these abnormal returns decline and they are not statistically significant when the inferences are made by the time-series of the annual sample. Therefore, positive returns to GC stocks are observed in a small number of years, likely representing compensation for the higher risks associated with such stocks.[37]

5.3.2. Multivariate regression analysis

To control for other variables that are correlated with both stock returns and audit modifications, we estimate the following multivariate regression models to further test H3:

$$BHAR_{t+1} = \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \gamma \boldsymbol{C} + \delta_t + \zeta_k + \varepsilon. \quad (7)$$

The dependent variable $BHAR_{t+1}$ stands for buy-and-hold stock returns. Although we only report results for the buy-and-hold stock returns, those based on cumulative returns yield qualitatively the

[36] Noting that extensive data mining in financial economics makes the usual criteria for establishing significance less useful, Harvey et al. (2016) suggest a t-value of 3.0 as a hurdle for significance level. By this standard, the negative mean returns for the GAAP/DISC group are far from being statistically significant.

[37] In Columns (1) and (2) of Table 6, we use the equally-weighted market or portfolio returns, respectively. Untabulated analyses based on the value-weighted market or portfolio returns indicate that the abnormal returns to MAO firms are generally more *positive* than those reported.

same inferences. Vector ***C*** includes the covariates considered in models (5a) and (5b), since they are correlated with MAO variables and may also affect stock returns. Among these, book-to-market ratio (*B*/*M*) and firm size (*Size*) are the two important factors in the asset pricing literature; the 12-month market- or portfolio-adjusted stock returns beginning in May of year *t* ($MARET_t$ or $PARET_t$) accounts for the momentum effect (Jegadeesh and Titman 1993), i.e., negative returns experienced by MAO firms in the current year could persist into the future.

Similar to the analysis in the previous subsection, we use five different stock return metrics. When $BHAR_{t+1}$ is the portfolio-adjusted returns, we use $PARET_t$ (portfolio-adjusted returns in *t*) and $MARET_t$ (market-adjusted returns in *t*) otherwise. In the above model, B/M_t, $Size_t$, and $MARET_t$ or $PARET_t$ are transformed to their annual decile rankings of 0 to 9, and then scaled by 9. The transformation, as noted earlier, reduces the possible influences of outliers and is less restrictive in the linearity assumption. As the scaled rankings are between 0 and 1, the coefficients on these ranked variables can be interpreted as hedge returns for buying average observations in the bottom decile and selling those in the top decile.

The regressions are estimated on both the pooled and annual samples. For the annual sample regressions, statistical inferences are based on the time-series variation of the annual coefficients (Fama and MacBeth 1973).[38] The regression results are reported in Table 7. For the pooled regressions in Panel A, the coefficients on *GAAP/DISC* are statistically significant only when the $BHAR_{t+1}$ is defined as the portfolio-adjusted returns [Column (2), $p = 0.092$], and their magnitude suggests that the post-MAO abnormal returns to *GAAP/DISC* firms are between –0.044 and –0.017. Such a magnitude is not economically sizable: as mentioned before, for our return data, the interquartile range (standard deviation) is above 0.30 (0.50). The coefficients on the *GC* variable are uniformly positive and only the one in the market-adjusted return regression is statistically significant. The coefficients on the control variables of *B*/*M*, *Size*, and *Delist Risk* are generally significant with expected signs, suggesting that these are important determinants of stock returns in China.

Turning to the Fama–MacBeth regressions in Panel B, we find that *GAAP/DISC* or *GC* never loads with statistically significant coefficients across the columns. Compared with the results from Panel A, the changes in the statistical significance levels for the MAO variables suggest that the significant results based on the pooled data, if any, are driven by abnormally high or low returns in a small number of years. The realization of extreme returns in some years hardly squares a mispricing story, which suggests that returns to MAO stocks should be consistently positive or negative for a reasonably long time period. With respect to the control variables, *Size* and *Delist Risk* are significant at the 5% or lower

[38] In our data, there is no GC-type MAO in 1995 and 1996, and no observation takes a value of 1 in the *Delist Risk* variable in 1995. The $RP\ Loan_t$ variable is based on the disclosure of related-party transactions, starting in 1997. Accordingly, the coefficient estimates and t-statistics for GC_t, $Delist\ Risk_t$, and $RP\ Loan_t$ variables are based on 15, 16, and 15, respectively, rather than 17 annual regressions, under Fama–MacBeth approach.

levels in four out of five regressions, whereas *B*/*M* is significant at the 10% level in only one regression. This implies that the *B*/*M* effect, to a certain extent, reflects risk premiums for stocks with a high *B*/*M* ratio, and therefore higher returns to *B*/*M* stocks do not show up every year.

We check whether multicollinearity is the culprit for the insignificance of *GAAP/DISC* and *GC* variables. In the pooled regressions, their variance inflation factors are all smaller than 2, well below the typical cutoff value of 10 for the possible presence of a multicollinearity problem.[39] Collectively, evidence from both Tables 6 and 7 does not lend support to H3; instead, the evidence is more consistent with the null that the market efficiently prices MAO information once announced, leaving long-run post-MAO stock returns unpredictable.

5.3.3. Factor model approach

In the above analysis, the effects of market returns, *Size*, and *B/M* on stock returns are controlled for by comparing returns to MAO stocks with returns to reference portfolios or matched control firms, or by including these variables in regressions. These approaches assume that *B*/*M* and *Size* effects are similar between MAO and non-MAO firms. Fama and French (1995) document that *Size* and *B*/*M* also signal persistent poor earnings performance and small stocks are particularly sensitive to the size factor. It is possible that the sensitivity of MAO stock returns to the risk factors differs from that of non-MAO stock returns. In Panel A of Table 8, we fit the Fama and French (1993) three-factor model for three calendar-time portfolios formed by audit opinions. This approach allows sensitivity of MAO stock returns to the market, size, and book-to-market ratio factor returns to vary across portfolios. In Panel B, we estimate the Carhart (1997) four-factor model with momentum as an additional factor. For both the GAAP/DISC and GC portfolios, the regression intercepts are not significantly different from zero in either the three-

[39] For the market- or portfolio-adjusted returns [Columns (1) and (2)], the R^2 from the pooled regression (Panel A) is considerably smaller than the average R^2 from the annual regressions (Panel B). The R^2 is computed as (SST – SSE)/SST, where SST (Sum of Squares Total) measures how far the data are from the sample mean, SSE (Sum of Squares Error) measures how far the data are from the model's predicted values, and the difference between SST and SSE, or Sum of Squares Regression (SSR), measures the improvement in prediction from the regression model. Untabulated analysis suggests that SST from the pooled data is far larger than those from the annual data although SSR is much more comparable. When data from a total of 17 years are pooled, the variance of the return variables is much greater than that in the annual data. This contributes to the large difference between the two data sets in SST and therefore the R^2s.

As for the match control returns in Columns (3) to (5), the R^2s from the pooled regressions are well above those from the annual regressions. Recall that the match control return metrics are based on the comparison between firms in raw stock returns drawn from the same period. The year indicators in the pooled regressions explain a substantial portion of return variability due to the fluctuation of the stock market over time, greatly increasing the R^2s of the pooled regressions.

or four-factor model. Because the intercept estimates represent portfolios' monthly abnormal returns, we find no abnormal post-MAO returns. The annualized abnormal returns to the GAAP/DISC portfolio are –1.04% and –0.16%, respectively, using the intercept estimates from the Fama and French (1993) and the Carhart (1997) models. The corresponding estimates for the GC portfolio are 0.86% and 3.38%. In an economic sense, the magnitudes of these estimates suggest that abnormal returns to the MAO portfolio are puny. In the four rightmost columns of Table 8, we also estimate the factor models for the hedge portfolios formed by buying stocks with clean audit opinions and shorting stocks with MAOs. Again, we find that the intercept estimates of these hedge portfolios are indistinguishable from zero in a statistical or economic sense. Therefore, allowing for the heterogeneity in return covariation with risk factors between MAO and non-MAO stock does not change the tenor of our earlier results.

6. Additional analysis

6.1. The delisting returns

Kausar et al. (2009) stress that returns to GC firms in the U.S. are highly sensitive to the computation of delisting returns. In our data, this complication is less serious because only 11 delisted stocks are included in portfolios formed by audit opinions, as explained in Section 4. On average, these stocks are traded for 8.36 months in year $t + 1$ before their eventual delisting. In the results reported above, we measure returns to delisted stocks as returns to the market or comparable portfolios, assuming that investors sell delisted stocks and reinvest the proceeds in the market index or comparable portfolios. In the final trading month, the mean (median) turnover ratio, defined as the number of shares traded in the month divided by the number of outstanding shares at the beginning of the month, is 0.478 (0.300). By comparison, the mean (median) of monthly turnover of all stocks in the sample, excluding the final month of delisted stocks, is 0.439 (0.293). By any standard, the delisted stocks are actively traded and thus the above reinvestment assumption appears to be reasonable.

We also apply the most extreme assumption to computing delisting returns; that is, returns to delisting stocks in the year when they are delisted are –100%. This assumes that stocks are virtually worthless after delisting, and should eliminate any possible upside bias for returns to the two MAO portfolios. With such estimation, we continue to find that the 12-month returns to both GAAP and GC portfolios are close to those reported in Tables 6 and 7. For the multivariate regressions, the coefficients change only at the third decimal place. The largest changes occur at the market-adjusted returns when regressions are estimated by the Fama and MacBeth (1973) approach: the coefficients (t-values) for $GAAP/DISC_t$ and GC_t are –0.021 (–1.096) and 0.014 (0.257), respectively.

6.2. Alternative window definition for the long-term stock returns

The window for the above long-term stock returns analysis runs from May of year $t + 1$ to April of year

$t + 2$. This facilitates the portfolio construction as all the information for forming portfolios becomes available by May 1 when all Chinese public firms have disclosed their annual reports. However, stock returns from day +3 for annual report announcements to the end of April in year $t + 1$ may be omitted from the long-term stock return computations. To examine whether the results are sensitive to the omission of stock returns during this time interval, we use long-term return window running from day +3 for year t to day +2 for $t + 1$, where day 0 is the annual report disclosure date, for the market- or portfolio-adjusted return metrics.[40] In untabulated analyses, we still find no convincing evidence supporting post-MAO return predictability with this alternative return window definition.

6.3. Two- and three-year-ahead financial and stock return performance

In the main analyses, we examine how MAOs predict one-year-ahead financial performance and stock returns. It is interesting to examine whether MAO recipients differ from other firms in the longer term. An untabulated analysis indicates that the mean values of $F\text{-}Score_{t+2}$ ($F\text{-}Score_{t+3}$) for the Clean, GAAP/DISC, and GC groups are 1.315, 0.759, and 0.229 (1.317, 0.863, and 0.542), respectively. Linking this result to those presented in Table 2, we conclude that the differences in financial performance scores between MAO and non-MAO firms gradually converge to zero over time. This is consistent with the long-term mean reversion of profitability and other financial ratios (Nissim and Penman 2001). However, the differences in the means of $F\text{-}Score_{t+2}$ or $F\text{-}Score_{t+3}$ between the Clean and GAAP/DISC or GC groups remain highly significant ($p < 0.01$). Therefore, MAOs' predictive power for future financial performance persists into year $t + 3$.

With respect to the stock returns in years $t + 2$ or $t + 3$, the results are in line with those for year $t + 1$. After changing the dependent variables in model (7) to $BHAR_{t+2}$ or $BHAR_{t+3}$, we find that none of the regression coefficients on *GAAP/DISC* or *GC* are significantly lower than zero. The most negative coefficient is observed in the *GC* variable estimated by the annual sample when the dependent variable is portfolio-adjusted returns in $t + 2$: the estimated coefficient is –0.037 (t = –1.210).[41] Therefore, although financial performance after $t + 1$ is reliably correlated with MAOs, there is no evidence on delayed market response to MAOs in the longer holding periods.

7. Conclusion

Motivated by the debate on market efficiency with respect to audit opinions, we revisit this issue using data from China. Several characteristics of the Chinese stock market make it particularly interesting to

[40] This alternative window definition does not apply to the control-matched return metrics because information for identifying match control firms is not available until all firms disclose annual reports at the end of April.

[41] The corresponding coefficient estimated by the pooled sample is –0.019 (t = –0.504).

examine the pricing of audit opinions. First, this market is dominated by small individual investors, a group of financial statement users who are most likely to misunderstand and even neglect the value implications of audit opinions. Second, audit modifications due to violations of GAAP or disclosure rules are permissible in China. Involving a wide range of accounting/disclosure practices, GAAP/DISC MAOs could be less straightforward than GCOs in a valuation context. We thus have an opportunity not available in the prior literature to analyze how investors assimilate information in GAAP/DISC MAOs. Finally, several features of stock trading in China, including the short-selling constraint, high liquidity, and the simplicity in delisting-return computation, help us to exclude low test power, trading friction, and the treatment of delisting returns as potential explanations for mispricing. In totality, we have a unique and interesting research setting, where the mispricing of audit opinions could be better detected if it is driven by human information processing bias as previous studies conjecture.

Before testing investors' responses, we first assess audit quality in China by examining whether audit opinions are informative of firms' future financial performance. Our analyses show that MAO recipients significantly underperform other firms in the year following MAOs. Moreover, MAO firms are more likely to engage in financial misreporting and corporate misconducts and be penalized by stock exchanges. However, different from the prediction under the naïve-investor hypothesis, we find no credible evidence indicating mispricing of audit opinions in China. Instead, an examination of market reaction to MAO disclosures suggests that investors react negatively to MAOs, and the extent of market reaction varies with factors such as pre-disclosure information and severity of MAOs. Using a battery of abnormal return metrics and different return computation methods and data analysis approaches, we find that the post-MAO 12-month returns are indistinguishable from zero, statistically or economically. Together, the short- and long-window evidence does not support the delayed response to the information contained in MAOs. Finally, our findings hold for both the GAAP/DISC- and GC-type MAOs.

Overall, our evidence suggests that even Chinese investors are sophisticated enough to understand the economic meaning of MAOs and price this important information in a speedy and unbiased manner. In fact, they not only respond to auditors' doubt about firms' financial viability in GCOs, but are able to undo the effects of problematic accounting or disclosure opacity, as auditors warn via GAAP/DISC MAOs, on valuation. While our results might appear somewhat perplexing given the emerging nature of the Chinese stock market, they are not necessarily inconsistent with the Chinese institutional environment and the evidence in the extant literature. Audit reports in China contain specific information about reasons underlying MAOs, such as related-party transactions, questionable accounting/business practices, violation of laws or regulations, ability as a going concern, etc. The rich information content likely explains our evidence on the usefulness of audit reports in China. Further, relative to mature markets, the China stock market exhibits a higher level of stock-price synchronicity, implying less firm-specific information available to investors (Morck et al. 2000; Gul et al. 2010). The value implications of unambiguous and reliable firm-specific information such as audit opinions can be strong as they

become known to the investors. This interpretation is generally consistent with Chinese evidence on the value relevance of accounting information, including the usefulness of accounting numbers in explaining the pricing of stocks (Chen et al. 2001), the similar degree of value relevance of accounting information as compared with that in mature markets (Chen and Wang 2004), and investors' ability to distinguish different earnings components by their valuation implications (Chen et al. 2009).

Given the emerging nature of the Chinese stock market and the institutional differences between China and other countries, caution must be exercised when comparing our results with those from other studies. Nevertheless, understanding China, the world's second-largest stock market, is important in its own right. To the extent that cognitive bias is generic rather than country specific, our evidence also provides useful clues to better understand the audit-opinion "anomaly" as documented in other markets. As Basu (2004) notes, one possible reason for the post-GCO negative returns is the high transaction costs that impede arbitrage. The literature also documents substantial Type I errors of GCOs and consequently great information uncertainty associated with GCO recipients, likely reflecting excessively conservative audit reporting to avoid litigation in the U.S. (Carson et al. 2013; DeFond and Zhang 2014). Future research may investigate whether market frictions or information uncertainty contribute to the anomalous post-GCO returns in other countries. For practitioners, the message from this study is that investors do incorporate the information contained in auditor opinions into stock prices in a rational manner. Given the usefulness of the audit-report information, it is certainly meaningful for regulators and auditing standard setters to continue their efforts in further improving the content and structure of auditors' reports (IAASB 2015; PCAOB 2017).

Appendix 1

Reasons underlying MAOs (1995–2011)

We classify the underlying reasons for MAOs based on the taxonomy developed by Chen et al. (2005), with necessary modifications to reflect MAOs issued after their sample period. As an MAO typically involves multiple items and reasons, the frequency of reasons is much larger than that of MAOs.

Items	Frequency	Percentage (%)
Violation of GAAP	**2,674**	**29.71**
Accounting treatment inconsistent with GAAP	1,189	13.21
Violation of other regulations	672	7.47
Questionable practices	602	6.69
Violation of consistency	204	2.27
Insufficient information disclosure	4	0.04
Misclassification of fixed assets	3	0.03
Emphasizing important items	**2,326**	**25.85**
Related-party transactions	932	10.36
Asset impairments	680	7.56
Emphasizing important accounting treatments	383	4.26
Contingent items and uncertainties	235	2.61
Tax issues	49	0.54
Internal control weakness	47	0.52
Audit scope limitation	**596**	**6.62**
Some items in financial statements are not audited	335	3.72
Insufficient accounting records	174	1.93
Subsidiaries are not audited	87	0.97
Unresolved issues from prior periods	**112**	**1.24**
Modified for items from prior periods	108	1.20
Explanation about new developments	4	0.04
Use of other auditors' work	**70**	**0.78**
Rely on other auditors' work	50	0.56
Rely on other auditors' work who issued MAOs	20	0.22
Going-concern ability	**3,222**	**35.80**
Emphasizing poor financial situation and operating results	1,224	13.60
Insolvency	970	10.78
Substantial doubt about going-concern ability	926	10.29
Cash flow risk	102	1.13
Total	**9,000**	**100**

Appendix 2

Predicting forthcoming MAOs

We model the probability that a firm will receive an MAO before the announcement of its annual report. Different from the usual purpose of explaining auditors' issuance of MAOs, here we are interested in how well the market can predict the types of audit opinions purely by information available before the release of annual reports. Therefore, variables such as audit risks based on financial statement ratios are not considered since such information is not yet available to the market before the formal release of annual reports.

We expect that longer audit delay (*Delay*), worse pre-announcement stock returns (*LagRET*), and the presence of warnings for poor earnings performance (*Warnings*) are associated with higher likelihood of MAOs. Since reasons underlying MAOs can be sticky, we consider the presence of MAOs in the prior year (MAO_{t-1}) as a predictor. Auditor attributes can also influence the propensity to modify audit opinions. On the one hand, clients of large auditors could be less risky and therefore are less likely to receive MAOs. On the other hand, large auditors are more conservative and issue MAOs more frequently to protect their reputation capital. We consider two auditor attributes: the membership of international *Big N* firms and *Auditor Size* in terms of total assets audited in the listed sector. The auditors can be identified before the release of audit reports because Chinese firms must disclose auditor change, if any, before the actual audit engagements begin. The definitions of the predicting variables are shown in the footnotes to Table A1 below.

For each sample year, we estimate the logit models for the *GAAP/DISC*- and *GC*-type opinions separately. The results for these annual logit regressions are summarized in Table A1. The coefficient signs of the predictors are generally consistent with expectation. With mean concordance ratios at around 90%, both models are reasonably accurate in predicting the forthcoming audit opinion types.

Table A1
Predicting forthcoming MAOs

Variables	(1) $y = GAAP/DISC_t$		(2) $y = GC_t$	
	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	–8.175	–15.039***	–19.674	–2.233**
$Delay_t$	3.697	8.554***	9.592	1.485
$LagRET_t$	–0.557	–2.405**	–4.002	–1.406
$Warnings_t$	0.813	5.098***	1.924	4.648***
MAO_{t-1}	2.721	16.221***	3.777	9.659***
$Big\ N_t$	–0.450	–2.327**	–1.846	–1.430
$Auditor\ Size_t$	0.423	2.041*	2.779	1.127
Industry indicators	Yes		Yes	
Mean # of obs	1,202		1,323	
Mean % concordant	87.23%		96.59%	
Mean Pseudo R^2	15.90%		14.56%	

The regressions are estimated by year and the reported coefficient estimates are the mean values of the 17 and 15 annul regression coefficients, respectively, for the $GAAP/DISC_t$ and GC_t models. The t-statistics are calculated as the mean values of the annual coefficients divided by their standard errors.

$Delay_t$ = The number of working days between the fiscal year end (FYE) and the annual report announcement date, scaled by the total number of working days between FYE and the end of April of year $t + 1$.

$LagRET_t$ = The buy-and-hold market-adjusted returns from one week after the announcement day of annual reports in year $t - 1$ to day –1, where day 0 is the announcement day of annual reports.

$Warnings_t$ = 1 if the firm has issued warnings for earnings decline or loss occurrence in or after the 4th quarter of the year, and 0 otherwise.

MAO_{t-1} = 1 if the firm has received an MAO in the prior year, and 0 otherwise.

$Big\ N_t$ = 1 if the auditor is one of the international Big N auditors, and 0 otherwise.

$Auditor\ Size_t$ = Annual percentile rankings of audit firm size, measured as the natural logarithm of the total audited assets (in millions of RMB) of the listed clientele.

*, **, and *** denote two-tailed significance at the 10%, 5%, and 1% level, respectively.

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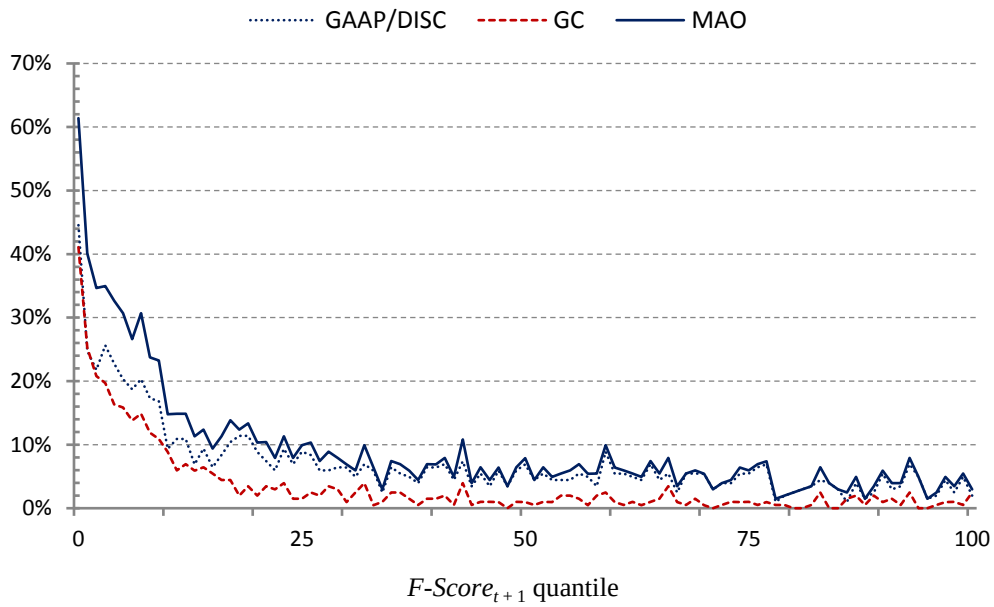
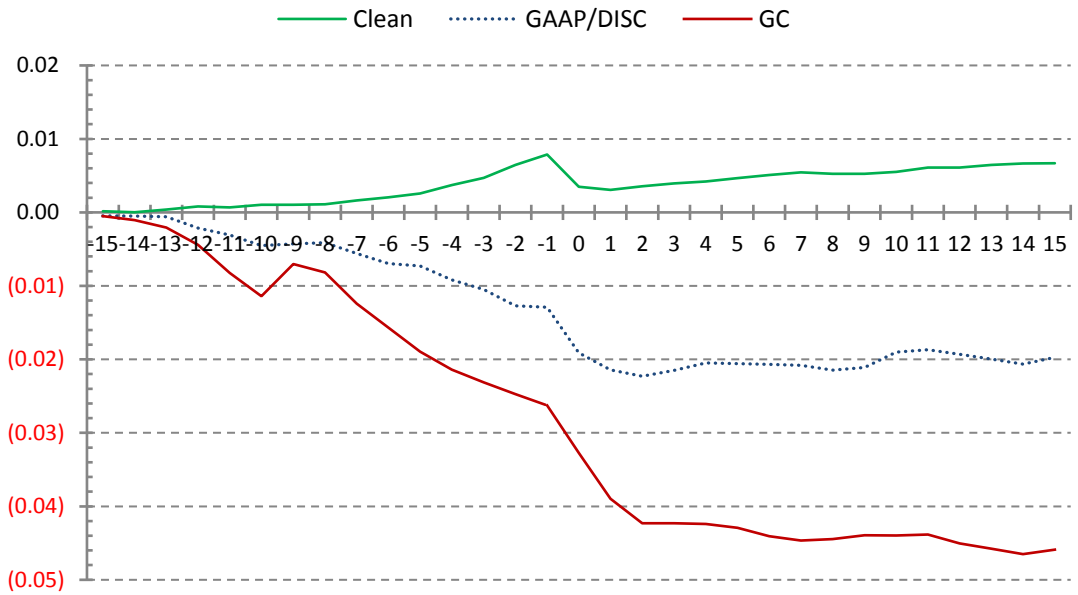
Figure 1
Audit opinions and the realization of future financial performance



Observations are sorted into 100 quantile groups by *F-Score*$_{t+1}$, from low to high. The figure presents the percentages of GAAP/DISC, GC, and total MAOs in each quantile group.

Figure 2
Stock price behavior around the announcements of audit opinions



The figure is based on the pooled sample of 18,372 firm-year observations between 1995 and 2011. Day 0 is the announcement days of firms' annual reports, and the returns are computed as buy-and-hold returns.

Table 1
Sample distribution

Year	Clean	MAOs		Total sample
		GAAP/DISC	GC	
1995	243	39	n.a.	282
1996	257	48	n.a.	305
1997	419	87	3	507
1998	677	139	22	821
1999	730	178	36	916
2000	880	169	29	1,051
2001	977	139	33	1,124
2002	1,034	136	42	1,188
2003	1,154	67	45	1,243
2004	1,196	95	61	1,326
2005	1,173	95	78	1,320
2006	1,264	66	60	1,371
2007	1,392	48	52	1,477
2008	1,437	47	63	1,526
2009	1,592	39	69	1,682
2010	1,938	37	56	2,023
2011	2,176	40	63	2,269
Total	18,539	1,469	712	20,431

MAOs include unqualified opinions with explanatory notes, qualified opinions, disclaimers, and adverse opinions.

The GC-type MAOs include cases where the auditors explicitly mention issues involving firms' financial troubles or operating problems. Other MAOs are due to the violations of GAAP or disclosure rules and are classified as GAAP/DISC-type modification.

Table 2
The *F-Score* and its component by type of audit opinion

Variables	Clean (n = 18,539)	GAAP/DISC (n = 1,469)	GC (n = 712)
Panel A: *F-Score* and its component in year t			
F-Score	**1.485**	**0.346**†††	**–0.562**‡‡‡
ROA	0.062	–0.019†††	–0.097‡‡‡
OCF	0.050	0.013†††	0.001‡‡‡
Loss	0.077	0.423†††	0.798‡‡‡
Negative OCF	0.227	0.408†††	0.473‡‡‡
Leverage	0.217	0.340†††	0.458‡‡‡
Liquidity	2.097	1.374†††	0.714‡‡‡
Gross Margin	0.262	0.201†††	0.144‡‡‡
Turnover	0.687	0.440†††	0.354‡‡‡
Panel B: *F-Score* and its component in year t + 1			
F-Score	**1.393**	**0.497**†††	**–0.210**‡‡‡
ROA	0.056	–0.013†††	–0.063‡‡‡
OCF	0.050	0.028†††	0.014‡‡‡
Loss	0.102	0.397†††	0.653‡‡‡
Negative OCF	0.228	0.354†††	0.430‡‡‡
Leverage	0.222	0.349†††	0.437‡‡‡
Liquidity	1.966	1.277†††	0.762‡‡‡
Gross Margin	0.255	0.207†††	0.177‡‡‡
Turnover	0.693	0.449†††	0.395‡‡‡

F-Score = The fundamental score based on the following eight fundamental variables. Fundamental variables in continuous form are first normalized within each industry-year by: $Z(x) = [x_i - \text{Min}(x)]/[\text{Max}(x) - \text{Min}(x)]$, where x_i is the original value of the variable, Min(x) and Max(x) are the minimum and maximum values, respectively, of x in the industry-year. *F-Score* is then computed as: Z(*ROA*) + Z(*OCF*) – *Loss* – *Negative OCF* – Z(*Leverage*) + Z(*Liquidity*) + Z(*Gross Margin*) + Z(*Turnover*), where Z(•) stands for the above normalization function.

ROA = Operating income, adjusted for net interest expenses, divided by the average of beginning and ending total assets.

OCF = Operating cash flow divided by the average of beginning and ending total assets.

Loss = 1 if operating income (adjusted for net interest expenses) is negative, and 0 otherwise.

Negative OCF = 1 if operating cash flow is negative, and 0 otherwise.

Leverage = Total borrowings divided by total assets at the end of the year.

Liquidity = Current assets divided by current liabilities at the end of the year.

Gross Margin = Gross margin divided by sales.

Turnover = Sales divided by the average of beginning and ending total assets.

For years before 1998, when cash flow statement data are not available, operating cash flow is defined as the difference between operating income (adjusted for net interest expenses) and total accruals, and total accruals are estimated by the balance sheet approach as:
(ΔCurrent asset − ΔCash − ΔShort-term investments − ΔCurrent portion of long-term investments) − (ΔCurrent liability − ΔShort-term borrowings − ΔCurrent portion of long-term debt − ΔDividends payable) − Depreciation and amortization expense, where Δ denotes the change between the current and previous year.
For year 1998 and onwards, operating cash flow data are obtained from cash flow statements.
††† and ‡‡‡ denote that the differences between the Clean and GAAP/DISC and GC groups, respectively, in the mean values are significant at the 1% level or beyond in the two-tailed t-test.

Table 3

Descriptive statistics for variables used in multivariate regressions

Panel A: Main independent variables

Variables	Clean (n = 18,539)		GAAP/DISC (n = 1,469)		GC (n = 712)	
	Mean	Median	Mean	Median	Mean	Median
F-Score$_t$	1.485	1.647	0.346†††	0.396†††	-0.562‡‡‡	-0.603‡‡‡
R(*B*/*M*$_t$)	0.522	0.556	0.393†††	0.333†††	0.146‡‡‡	0.000‡‡‡
R(*Size*$_t$)	0.515	0.556	0.351†††	0.333†††	0.174‡‡‡	0.111‡‡‡
R(*MARET*$_t$)	0.509	0.556	0.409†††	0.333†††	0.389‡‡‡	0.333‡‡‡
R(*PARET*$_t$)	0.510	0.556	0.394†††	0.333†††	0.351‡‡‡	0.222‡‡‡
EQO$_t$	0.177	0.000	0.072†††	0.000†††	0.001‡‡‡	0.000‡‡‡
Delist Risk$_t$	0.018	0.000	0.222†††	0.000†††	0.607‡‡‡	1.000‡‡‡
RP Loan$_t$	0.018	0.001	0.095†††	0.028†††	0.112‡‡‡	0.015‡‡‡
Age$_t$	7.540	6.836	7.582	6.828	10.895‡‡‡	10.716‡‡‡
Big N$_t$	0.064	0.000	0.032†††	0.000†††	0.032‡‡‡	0.000‡‡‡
Auditor Size$_t$	0.709	0.769	0.718	0.781	0.695	0.762‡

Panel B: Additional variables used in the other outcome analysis

Variables	Clean (n = 18,539*)		GAAP/DISC (n = 1,469*)		GC (n = 712*)	
	Mean	Median	Mean	Median	Mean	Median
Altman Z-Score$_t$	0.927	0.907	–0.339†††	0.280†††	–2.228‡‡‡	–2.073‡‡‡
Altman Z-Score$_{t+1}$	0.830	0.847	–0.527†††	0.277†††	–2.228‡‡‡	–1.693‡‡‡
Upward Misstatement$_t$	0.112	0.000	0.269†††	0.000†††	0.195‡‡‡	0.000‡‡‡
Downward Misstatement$_t$	0.024	0.000	0.056†††	0.000†††	0.084‡‡‡	0.000‡‡‡
Accounting-related Misconducts$_t$	0.068	0.000	0.165†††	0.000†††	0.164‡‡‡	0.000‡‡‡
Other Misconducts$_t$	0.085	0.000	0.204†††	0.000†††	0.243‡‡‡	0.000‡‡‡
ST/Delist$_{t+2}$	0.039	0.000	0.384†††	0.000†††	0.781‡‡‡	1.000‡‡‡

Panel C: Additional variables used in the market reaction analysis

Variables	Clean (n = 16,625$^{\#}$)		GAAP/DISC (n = 1,369$^{\#}$)		GC (n = 630$^{\#}$)	
	Mean	Median	Mean	Median	Mean	Median
BHMAR$_{[0,+2]}$	–0.005	–0.008	–0.009††	–0.013†††	–0.020‡‡‡	–0.022‡‡‡
Delay$_t$	0.710	0.725	0.871†††	0.923†††	0.880‡‡‡	0.949‡‡‡
LagRET$_t$	–0.003	–0.059	–0.072†††	–0.125†††	–0.101‡‡‡	–0.158‡‡‡
Warnings$_t$	0.145	0.000	0.357†††	0.000†††	0.649‡‡‡	1.000‡‡‡
Δ*Core OI*$_t$	–0.004	0.003	–0.043†††	–0.008†††	–0.052‡‡‡	–0.016‡‡‡
ANACOV$_t$	0.605	1.000	0.185†††	0.000†††	0.119	0.000‡‡‡
Prob(*GAAP*$_t$)	0.046	0.013	0.364†††	0.301†††	-	-
Prob(*GC*$_t$)	0.015	0.002	-	-	0.451‡‡‡	0.443‡‡‡
Post2001$_t$	0.848	1.000	0.555†††	1.000†††	0.877‡‡	1.000‡‡
Loss$_t$	0.077	0.000	0.413†††	0.000†††	0.722‡‡‡	1.000‡‡‡
Loss2$_t$	0.017	0.000	0.165†††	0.000†††	0.391‡‡‡	0.000‡‡‡
SP$_t$	0.111	0.000	0.167†††	0.000†††	0.076‡‡‡	0.000‡‡‡

Definitions of variables in Panel A:

F-Score$_t$ = The fundamental score in year *t*.

R(*B*/*M*$_t$) = The decile ranking of book-to-market ratio of equity at the end of April of year *t* + 1.

R(*Size*$_t$) = The decile ranking of market value of equity at the end of April of year *t* + 1.

(The table continues on the next page.)

Table 3 (Continued)

R($MARET_t$) = The decile ranking of 12-month market-adjusted stock returns beginning in May of year *t*.
R($PARET_t$) = The decile ranking of 12-month portfolio-adjusted stock returns beginning in May of year *t*.
EQO_t = 1if the firm has equity offerings in year *t*, and 0 otherwise.
$Delist\ Risk_t$ = 1 if the firm has reported losses in both years *t* and *t* – 1, or its shareholders' equity is negative at the end of year *t*, and 0 otherwise.
$RP\ Loan_t$ = The balance of loans to related parties, scaled by total assets, at the end of year *t*.
Age_t = The number of years a company has been listed by end of year *t*.
$Big\ N_t$ = 1 if the auditor is one of the international Big N auditors, and 0 otherwise.
$Auditor\ Size_t$ = Annual percentile rankings of audit firm size, measured as the natural logarithm of the total audited assets (in millions of RMB) of the listed clientele.

Definitions of variables in Panel B:

Altman Z-Score = $0.517 – 0.460x_6 + 9.320*x_7 + 0.388*x_8 + 1.158x_9$, where x_6 is the asset liability ratio (total liabilities/total assets), x_7 is the rate of return on total assets (net profit/average total assets), x_8 is the ratio of working capital to total assets (working capital/total assets), and x_9 is the ratio of retained earnings to total assets (retained earnings/total assets) (Altman et al. 2010).
Upward Misstatement = 1 if earnings or shareholders' equity in the current year are restated downward subsequently, and 0 otherwise.
Downward Misstatement = 1 if earnings or shareholders' equity in the current year are restated upward subsequently, and 0 otherwise.
Accounting-related Misconducts = 1 if the firm is subsequently sanctioned by the CSRC, MOF, or stock exchanges due to accounting frauds or accounting irregularities in the current year, and 0 otherwise.
Other Misconducts = 1 if the firm is subsequently sanctioned by the CSRC, MOF, or stock exchanges due to non-accounting issues in the current year, and 0 otherwise.
ST/Delist = 1 if the firm receives an ST mark from stock exchanges or whose stocks are delisted, and 0 otherwise.

Definitions of variables in Panel C:

$BHMAR_{[0,+2]}$ = The buy-and-hold market-adjusted returns from day 0 to +2, where day 0 is the announcement day of annual reports.
$Delay_t$ = The number of working days between the fiscal year end (FYE) and the annual report announcement date, scaled by the total number of working days between FYE and the end of April of year *t* + 1.
$LagRET_t$ = The buy-and-hold market-adjusted returns from one week after the announcement day of annual reports in year *t* – 1 to day –1, where day 0 is the announcement day of annual reports.
$Warnings_t$ = 1 if the firm has issued warnings for earnings decline or loss occurrence in or after the 4th quarter of the year, and 0 otherwise.
$\Delta Core\ OI_t$ = Change in core operating income from the previous to current year, scaled by the market value of equity at the end of day –1, where day 0 is the announcement day of annual reports.
$ANACOV_t$ = 1 if the firm is followed by at least one analyst, and 0 otherwise.
Prob($GAAP_t$) = The estimated probability that the firm will receive a GAAP/DISC-type MAO (see Appendix).
Prob(GC_t) = The estimated probability that the firm will receive a GC-type MAO (see Appendix).
$Post2001_t$ = 1 if the observation is in or after year 2001, and 0 otherwise.
$Loss_t$ = 1 if the firm reports a loss for the current year, and 0 otherwise.
$Loss2_t$ = 1 if the firm reports losses for both the previous and current years, and 0 otherwise.
SP_t = 1 if the firm reports a small profit, i.e., *ROA* (earnings divided by the average of beginning and ending total assets) is between 0 and 1%, for the current year, and 0 otherwise.

†, ††, and ††† denote that the differences between the Clean and GAAP/DISC groups in the mean/median values are significant at the 10%, 5%, and 1% level, respectively, in the two-tailed t-/Wilcoxon-test.
‡, ‡‡, and ‡‡‡ denote that the differences between the Clean and GC groups in the mean/median values are significant at the 10%, 5%, and 1% level, respectively, in the two-tailed t-/Wilcoxon-test.
* For the variable of *Altman Z-Score*, the sample size for Clean, GAAP/DISC, and GC groups is 18,532, 1,440, and 673, respectively.
* For the variable of $ANACOV_t$, the sample size for Clean, GAAP/DISC, and GC groups is 13,762, 742, and 547, respectively.

Table 4
Audit opinions and future financial performance

Panel A: Predicting future financial performance

Variables	(1) $y = F\text{-}Score_{t+1}$		(2) $y = F\text{-}Score_{t+1}$		Variables	(3) $y = Altman\ Z\text{-}Score_{t+1}$	
	Coeff.	t-stat.	Coeff.	t-stat.		Coeff.	t-stat.
Intercept	0.599	12.264***	0.587	12.018***	Intercept	0.183	3.506***
$GAAP/DISC_t$	**–0.239**	**–7.162*** **	**–0.208**	**–5.482*** **	**$GAAP/DISC_t$**	**–0.242**	**–5.553*** **
GC_t	**–0.545**	**–9.600*** **	**–0.593**	**–9.747*** **	**GC_t**	**–0.991**	**–7.344*** **
$F\text{-}Score_t$	**0.497**	**52.913*** **	**0.507**	**51.930*** **	**$Altman\ Z\text{-}Score_t$**	**0.681**	**33.996*** **
$GAAP/DISC_t \times F\text{-}Score_t$			**–0.056**	**–2.223** **	**$GAAP/DISC_t \times Altman\ Z\text{-}Score_t$**	**–0.011**	**–0.204**
$GC_t \times F\text{-}Score_t$			**–0.089**	**–2.050** **	**$GC_t \times Altman\ Z\text{-}Score_t$**	**–0.054**	**–0.768**
R(B/M_t)	–0.111	–4.271***	–0.107	–4.137***	R(B/M_t)	–0.106	–4.411***
R($Size_t$)	0.287	11.305***	0.281	11.174***	R($Size_t$)	0.238	10.170***
R($PARET_t$)	0.208	8.606***	0.211	8.707***	R($PARET_t$)	0.210	8.812***
EQO_t	–0.028	–1.639	–0.029	–1.701*	EQO_t	–0.047	–4.016***
$Delist\ Risk_t$	0.359	7.299***	0.336	6.754***	$Delist\ Risk_t$	0.521	6.735***
$RP\ Loan_t$	–0.269	–2.080**	–0.280	–2.116**	$RP\ Loan_t$	–1.637	–6.718***
Age_t	–0.018	–10.752***	–0.017	–10.591***	Age_t	–0.010	–6.534***
$Big\ N_t$	0.062	2.041**	0.060	2.024**	$Big\ N_t$	0.052	2.658***
$Auditor\ Size_t$	–0.001	–0.048	–0.002	–0.066	$Auditor\ Size_t$	–0.032	–1.206
Year/Industry indicators	Yes		Yes		Year/Industry indicators	Yes	
$GAAP/DISC_t - GC_t$	0.306	4.540***	0.385	5.381***	$GAAP/DISC_t - GC_t$	0.749	5.297***
$GAAP/DISC_t \times F\text{-}Score_t - GC_t \times F\text{-}Score_t$			0.033	0.583	$GAAP/DISC_t \times Altman\ Z\text{-}Score_t - GC_t \times Altman\ Z\text{-}Score_t$	0.043	0.424
N	20,431		20,431		N	20,377	
Adj. R^2	36.69%		35.45%		Adj. R^2	53.42%	

(The table continues on the next page.)

Table 4 (Continued)

Panel B: Predicting other outcomes

Variables	(1) *y = Upward Misstatement$_t$*		(2) *y = Downward Misstatement$_t$*		(3) *y = Accounting-related Misconducts$_t$*		(4) *y = Other Misconducts$_t$*		(5) *y = ST/Delist*	
	Coeff.	Z-stat.	Coeff.	Z-stat.	Coeff.	Z-stat.	Coeff.	Z-stat.	Coeff.	Z-stat.
Intercept	–1.814	–11.560***	–3.470	–13.120***	–1.729	–8.157***	–1.651	–8.888***	–2.184	–10.254***
GAAP/DISC$_t$	**0.390**	**4.113*** **	**0.273**	**1.613**	**0.745**	**6.611*** **	**0.720**	**6.577*** **	**1.065**	**8.572*** **
GC$_t$	**–0.025**	**–0.150**	**0.507**	**2.268** **	**–0.053**	**–0.286**	**0.160**	**0.918**	**1.704**	**9.575*** **
F-Score$_t$	–0.191	–6.577***	–0.068	–1.310	–0.187	–5.507***	–0.207	–6.774***	–0.925	–22.014***
R(*B/M$_t$*)	0.317	2.660***	–0.238	–1.150	–0.081	–0.519	–0.121	–0.857	–1.092	–6.479***
R(*Size$_t$*)	–0.126	–1.020	0.062	0.285	–0.832	–5.057***	–0.849	–5.845***	–1.799	–9.776***
R(*PARET$_t$*)	–0.232	–2.910***	–0.070	–0.441	–0.172	–1.766*	–0.153	–1.679*	–0.771	–6.255***
EQO$_t$	–0.121	–1.898*	–0.302	–2.131**	0.023	0.310	–0.047	–0.658	–0.718	–3.664***
Delist Risk$_t$	–0.064	–0.490	0.359	1.924*	–0.228	–1.436	–0.221	–1.477	1.095	8.467***
RP Loan$_t$	–0.130	–0.358	0.693	1.191	1.036	2.231**	1.272	3.046***	3.016	5.090***
Age$_t$	0.030	3.166***	0.030	2.034**	–0.001	–0.082	–0.001	–0.080	0.059	4.586***
Big N$_t$	–0.903	–4.313***	–1.622	–4.138***	–0.515	–1.804*	–0.452	–1.943*	0.425	1.687*
Auditor Size$_t$	–0.422	–3.290***	–0.576	–2.473**	–0.527	–2.808***	–0.357	–2.179**	–0.037	–0.196
Year/Industry indicators	Yes		Yes		Yes		Yes		Yes	
GAAP/DISC$_t$ – GC$_t$	0.415	2.195**	-0.234	-0.774	0.799	3.516***	0.560	2.601***	-0.640	-2.913***
N	20,431		20,431		20,431		20,431		20,431	
Pseudo R^2	8.35%		1.62%		3.28%		4.78%		24.07%	

In Panel A, the dependent variable is *F-Score* or *Altman Z-Score* in year $t + 1$. In Panel B, the dependent variables include the presence of *Upward Misstatement*, *Downward Misstatement*, *Accounting-related Misconducts*, *Other Misconducts*, or the firms are in the *ST/Delist* status. The definition of *F-Score* is detailed in footnotes to Table 2 and other dependent variables are defined in the footnotes to Table 3. *GAAP/DISC$_t$* is an indicator for firms that have received GAAP/disclosure-related MAOs from auditors. *GC$_t$* is an indicator for firms that have received GC-related MAOs from auditors. Other independent variables are defined in footnotes to Table 3.

The t- or Z-statistics are based on standard errors clustered at the firm level. *, **, and *** denote two-tailed significance at the 10%, 5%, and 1% level, respectively.

Table 5

Market's response to modified audit opinions

	(1)		(2)		(3)	
Variables	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	–0.0090	–3.397***	–0.0129	–4.686***	–0.0174	–5.921***
GAAP/DISC$_t$	**–0.0039**	**–2.121****	**–0.0031**	**–1.729***	**–0.0085**	**–3.091*****
GC$_t$	**–0.0154**	**–5.576*****	**–0.0131**	**–4.904*****	**–0.0152**	**–4.620*****
Delay$_t$	0.0027	1.190	0.0048	2.246**	0.0090	3.508***
LagRET$_t$	–0.0052	–3.320***	–0.0047	–3.255***	–0.0064	–3.689***
Warnings$_t$	0.0040	3.278***	0.0057	5.072***	0.0035	2.669***
ΔCore OI$_t$	0.0278	3.497***	0.0204	2.669***	0.0109	1.021
F-Score$_t$			0.0025	5.775***		
ANACOV$_t$					0.0061	5.687***
GAAP/DISC$_t$×ANACOV$_t$					0.0036	0.628
GC$_t$×ANACOV$_t$					0.0237	2.836***
Year/Industry indicators	Included		Included		Included	
GAAP/DISC$_t$ – GC$_t$	0.0115	3.098***	0.0100	2.798***	0.0068	1.439
N	18,372		18,369		14,866	
Adj. R^2	0.97%		1.08%		1.48%	

(The table continues on the next page.)

Table 5 (Continued)

Variables	(4) Coeff.	(4) t-stat.	(5) Coeff.	(5) t-stat.	(6) Coeff.	(6) t-stat.
Intercept	–0.0094	–3.531***	–0.0090	–3.410***	–0.0105	–3.945***
GAAP/DISC $_t$	**–0.0052**	**–1.858***	**0.0007**	**0.256**	**–0.0005**	**–0.167**
GC $_t$	**–0.0229**	**–4.887*****	**–0.0223**	**–3.567*****	**–0.0255**	**–4.131*****
Prob(*GAAP/DISC*$_t$)	–0.0088	–1.562			–0.0085	–1.514
GAAP/DISC$_t$×Prob(*GAAP/DISC*$_t$)	0.0127	1.674*			0.0164	2.054**
Prob(*GC*$_t$)	–0.0227	–3.126***			–0.0153	–2.124**
GC$_t$×Prob(*GC*$_t$)	0.0376	3.374***			0.0319	2.802***
GAAP/DISC$_t$×*Post2001*$_t$			–0.0081	–2.169**		
GC$_t$×*Post2001*$_t$			0.0083	1.207		
Loss$_t$					0.0012	0.531
GAAP/DISC$_t$×*Loss*$_t$					–0.0098	–2.041**
GC$_t$×*Loss*$_t$					0.0098	1.320
Loss2$_t$					–0.0343	–7.294***
GAAP/DISC$_t$×*Loss2*$_t$					0.0088	1.180
GC$_t$×*Loss2*$_t$					0.0106	1.385
SP$_t$					0.0013	0.940
GAAP/DISC$_t$×*SP*$_t$					–0.0125	–2.977***
GC$_t$×*SP*$_t$					0.0065	0.664
Delay$_t$	0.0039	1.704*	0.0027	1.192	0.0046	2.015**
LagRET$_t$	–0.0053	–3.390***	–0.0053	–3.352***	–0.0050	–3.206***
Warnings$_t$	0.0055	4.269***	0.0042	3.422***	0.0082	5.581***
Δ*Core OI*$_t$	0.0281	3.502***	0.0275	3.453***	0.0299	3.716***
Year/Industry indicators	Included		Included		Included	
GAAP/DISC$_t$ – *GC*$_t$	0.0178	3.003***	0.0230	3.010***	0.0250	3.379***
N	18,372		18,372		18,372	
Adj. R^2	1.10%		1.00%		1.89%	

(The table continues on the next page.)

Table 5 (Continued)

The dependent variable is $BHMAR_{[0, +2]}$, the buy-and-hold market-adjusted returns from day 0 to +2, where day 0 is the announcement day of annual reports. $GAAP/DISC_t$ is an indicator for firms that have received GAAP/disclosure-related MAOs from auditors. GC_t is an indicator for firms that have received GC-related MAOs from auditors. Other independent variables are defined in footnotes to Table 3. The analysis based on analyst coverage in Column (3) is limited to the period of 2001–2011 because CSMAR's analyst-coverage data start from 2001.

The t-statistics are based on standard errors clustered at the firm level. *, **, and *** denote two-tailed significance at the 10%, 5%, and 1% level, respectively.

Table 6

Univariate analysis of stock returns in year *t* + 1 to portfolios formed by types of audit opinions

Statistics	(1) Market adjusted returns			(2) Portfolio adjusted returns			(3) *Size-B/M* matched control returns		(4) *B/M-Size* matched control returns		(5) *F-Score* matched control returns	
	Clean	GAAP/DISC	GC	Clean	GAAP/DISC	GC	GAAP/DISC	GC	GAAP/DISC	GC	GAAP/DISC	GC
Panel A: Buy-and-hold returns												
A1. Pooled sample												
Mean	–0.024	0.001	0.131	–0.016	–0.051	–0.015	–0.036	0.112	–0.027	0.078	0.028	0.155
(t-stat.)		(1.25)	(4.00***)		(–1.79*)	(–0.04)	(–1.70*)	(3.30***)	(–1.07)	(1.51)	(1.11)	(3.38***)
[p-value]		[0.210]	[0.000]		[0.074]	[0.969]	[0.089]	[0.001]	[0.283]	[0.133]	[0.269]	[0.000]
A2. Annual sample												
Mean	–0.018	–0.002	0.058	–0.009	–0.055	–0.050	–0.025	0.048	–0.038	0.030	0.013	0.087
(t-stat.)		(–0.31)	(0.89)		(–1.57)	(–0.94)	(–0.87)	(0.62)	(–0.60)	(0.39)	(0.18)	(1.08)
[p-value]		[0.760]	[0.387]		[0.134]	[0.360]	[0.395]	[0.546]	[0.556]	[0.705]	[0.861]	[0.297]
Panel B: Cumulative returns												
B1. Pooled sample												
Mean	–0.005	–0.002	0.082	0.000	–0.025	0.018	–0.037	0.045	–0.024	0.028	0.000	0.084
(t-stat.)		(–0.25)	(3.46***)		(–1.99**)	(0.72)	(–3.21***)	(2.03**)	(–1.56)	(0.75)	(0.04)	(2.97***)
[p-value]		[0.805]	[0.001]		[0.046]	[0.469]	[0.001]	[0.043]	[0.119]	[0.454]	[0.966]	[0.003]
B2. Annual sample												
Mean	–0.001	0.004	0.039	0.006	–0.022	–0.016	–0.031	0.012	–0.020	–0.004	–0.001	0.041
(t-stat.)		(0.16)	(0.69)		(–1.30)	(–0.52)	(–1.55)	(0.25)	(–0.69)	(–0.07)	(–0.05)	(0.71)
[p-value]		[0.870]	[0.504]		[0.210]	[0.611]	[0.142]	[0.808]	[0.502]	[0.948]	[0.961]	[0.491]

(The table continues on the next page.)

Table 6 (Continued)

The abnormal stock returns are defined as follows.

(1) The market-adjusted returns are defined as stock returns minus the equal-weighted market return over the same period.

(2) The portfolio-adjusted returns are defined as stock returns minus the equal-weighted return of a comparable size and *B*/*M* portfolio return over the same period.

(3) The *Size-B/M* matched control returns are defined as stock returns minus the return of a control stock matched by size and *B/M* over the same period. We first identify all non-MAO recipients with a market value of equity between 70% and 130% of the market value of equity of the MAO recipient at the end of April in year t + 1. From this set of firms, we select the firm with the closest book-to-market ratio to the MAO recipient at the end of April in year $t + 1$ as its match.

(4) The *B/M-Size* matched control returns are defined similarly to those of *Size-B/M* matched control returns, except that we match MAO and non-MAO recipients first by *B/M* and then by market value of equity.

(5) The *F-Score* matched control returns in year $t + 1$ are defined as stock returns minus the return of a control stock matched by $F\text{-}Score_t$ over the same period. For each MAO recipient, we select a non-MAO observation in the same year with the closest $F\text{-}Score_t$ to the MAO recipient as its match.

For all return metrics, we compute both buy-and-hold and cumulative returns over the 12-month period beginning in May of year $t + 1$.

In Panels A1 and B1, we pool all observations during the sample period. In the annual sample analysis of Panels A2 and B2, the mean value is the simple average of the annual mean abnormal returns, and statistics are based on the empirical distribution of the annual mean returns. For the market/portfolio-adjusted returns in Columns (1) and (2), the t-statistics are obtained from t-tests that compare the mean values between the Clean and MAO groups. For *Size-B/M* or *F-score* matched control returns, the t-statistics are obtained from t-tests that examine whether the mean values are different from zero.

Table 7

Multivariate regression analysis of stock returns in year $t + 1$ to portfolios formed by types of audit opinions

Panel A: Pooled regressions

Variables	(1) Market adjusted returns		(2) Portfolio adjusted returns		(3) *Size-B/M* matched control returns		(4) *B/M-Size* matched control returns		(5) *F-Score* matched control returns	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	–0.004	–0.142	–0.070	–2.205**	0.138	2.200**	0.093	1.175	0.135	1.720*
GAAP/DISC$_t$	**–0.028**	**–1.440**	**–0.034**	**–1.687***	**–0.034**	**–1.612**	**–0.044**	**–1.599**	**–0.017**	**–0.718**
GC$_t$	**0.099**	**2.550****	**0.021**	**0.522**	**0.020**	**0.593**	**0.042**	**0.873**	**0.033**	**0.764**
R(*B/M$_t$*)	0.138	10.333***	0.082	5.786***	0.136	4.091***	0.185	3.899***	0.052	1.176
R(*Size$_t$*)	–0.200	–15.099***	–0.013	–0.960	–0.257	–7.690***	–0.283	–6.215***	–0.333	–7.816***
R(*MARET$_t$*) or R(*PARET$_t$*)	0.027	1.988**	0.010	0.689	–0.043	–1.326	0.026	0.605	–0.016	–0.410
F-Score$_t$	0.015	3.342***	0.014	3.020***	0.015	1.586	0.006	0.492	0.016	1.415
EQO$_t$	0.002	0.276	–0.003	–0.348	0.030	1.050	0.054	1.326	0.078	1.848*
Delist Risk$_t$	0.150	4.388***	0.096	2.764***	0.146	4.140***	0.161	3.579***	0.150	3.439***
RP Loan$_t$	–0.016	–0.156	–0.070	–0.661	–0.206	–2.087**	–0.170	–1.308	–0.261	–2.004**
Age$_t$	0.001	1.346	0.002	1.835*	0.001	0.300	0.003	0.948	0.000	–0.009
Big N$_t$	–0.033	–2.399**	–0.057	–3.611***	0.035	0.607	–0.110	–2.171**	0.035	0.488
Auditor Size$_t$	–0.013	–0.836	–0.008	–0.496	–0.001	–0.027	–0.053	–1.000	0.039	0.764
Year/Industry indicators	Yes		Yes		Yes		Yes		Yes	
N	20,431		20,431		3,711		3,150		3,784	
Adj. R^2	2.10%		0.52%		69.98%		63.88%		69.22%	

(The table continues on the next page.)

Table 7 (Continued)

Panel B: The annual regressions

Variables	(1) Market adjusted returns		(2) Portfolio adjusted returns		(3) *Size-B/M* matched control returns		(4) *B/M-Size* matched control returns		(5) *F-Score* matched control returns	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	–0.015	–0.230	–0.087	–1.988*	0.274	1.442	0.254	1.479	0.278	1.227
GAAP/DISC$_t$	**–0.019**	**–1.017**	**–0.028**	**–1.697**	**–0.006**	**–0.265**	**–0.063**	**–1.191**	**–0.002**	**–0.055**
GC$_t$	**0.016**	**0.296**	**–0.011**	**–0.257**	**–0.025**	**–0.425**	**–0.002**	**–0.036**	**–0.017**	**–0.262**
R(*B/M$_t$*)	0.154	1.643	0.114	1.952*	0.176	1.593	0.181	1.416	0.161	1.099
R(*Size$_t$*)	–0.202	–3.637***	–0.033	–0.561	–0.220	–3.000***	–0.287	–3.625***	–0.360	–3.300***
R(*MARET$_t$*) or R(*PARET$_t$*)	0.000	0.007	0.019	0.449	–0.075	–1.717	0.009	0.160	–0.032	–0.562
F-Score$_t$	0.017	1.127	0.017	1.308	0.007	0.572	0.008	0.739	0.016	1.321
EQO$_t$	0.007	0.197	0.003	0.094	–0.012	–0.130	0.046	0.514	0.055	0.644
Delist Risk$_t$	0.097	3.012***	0.074	2.828**	0.107	2.392**	0.082	1.219	0.083	2.490**
RP Loan$_t$	–0.050	–0.631	–0.057	–0.767	–0.069	–0.432	0.100	0.459	–0.134	–0.815
Age$_t$	0.001	0.366	0.000	0.062	0.005	1.072	0.004	0.987	–0.004	–1.750*
Big N$_t$	–0.061	–1.122	–0.101	–1.731	–0.026	–0.479	–0.073	–1.211	0.058	1.027
Auditor Size$_t$	–0.007	–0.252	–0.001	–0.037	0.020	0.520	0.032	0.509	0.145	1.312
Industry indicators	Yes		Yes		Yes		Yes		Yes	
Mean # of obs	1,202		1,202		218.24		185.29		222.59	
Mean adj. R^2	14.17%		7.28%		12.19%		10.77%		16.01%	

The dependent variables are 12-month buy-and-hold stock returns in year $t + 1$. See Table 6 for the definitions of the stock return variables. The independent variables are defined in Table 3.

In Panel A, the regressions are estimated on the pooled sample. The t-statistics are based on standard errors clustered at the firm level. In Panel B, the regressions are estimated by year and the reported coefficient estimates are the mean values of the 17 annul regression coefficients, except that *GC$_t$*, *Delist Risk $_t$*, and *RP Loan$_t$* coefficients are based on 15, 16, and 15 annul regressions, respectively. The t-statistics are calculated as the mean values of the annual coefficients divided by their standard errors.

For regressions in Columns (1), (3), (4), and (5), variable R(*MARET$_t$*) is included as one predictor variable, and for regressions in Column (2), variable R(*PARET$_t$*) is used.

*, **, and *** denote two-tailed significance at the 10%, 5%, and 1% level, respectively.

Table 8
Estimates from the factor models

Variables	Clean portfolio		GAAP/DISC portfolio		GC portfolio		Hedge portfolio: Clean – GAAP/DISC		Hedge portfolio: Clean – GC	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Panel A: The Fama-French (1993) three-factor model										
Intercept	**0.001**	**0.942**	**–0.001**	**–0.346**	**0.001**	**0.142**	**0.002**	**0.878**	**0.001**	**0.131**
$R_M - R_F$	1.028	76.025***	1.049	37.514***	1.016	17.701***	-0.021	-0.808	0.004	0.077
SMB	0.567	20.955***	0.948	16.944***	1.283	11.318***	-0.381	-7.438***	-0.692	-6.057***
HML	–0.105	–3.388***	–0.128	–1.988**	–0.286	–1.900*	0.022	0.381	0.071	0.470
N	204		204		180		204		180	
Adj. R^2	97.05%		90.14%		73.65%		21.30%		16.01%	
Panel B: Carhart (1997) four-factor model										
Intercept	**0.001**	**0.951**	**0.000**	**–0.055**	**0.003**	**0.592**	**0.001**	**0.589**	**–0.001**	**–0.246**
$R_M - R_F$	1.028	75.428***	1.060	39.230***	1.027	18.947***	–0.032	–1.315	–0.006	–0.102
SMB	0.566	19.110***	0.851	14.505***	1.041	8.781***	–0.285	–5.353***	–0.478	–3.941***
HML	–0.106	–3.361***	–0.169	–2.697***	–0.462	–3.148***	0.063	1.103	0.227	1.514
UMD	–0.005	–0.151	–0.266	–4.157***	–0.634	–4.746***	0.261	4.489***	0.561	4.107***
N	204		204		180		204		180	
Adj. R^2	97.03%		90.89%		76.52%		28.18%		22.96%	

In Panels A and B, we estimate the Fama-French (1993) three-factor model and Carhart (1997) four-factor model, respectively, on calendar-time portfolios formed each month from May 1996 through April 2013 according to firms' audit opinions received in the previous fiscal year. The hedge portfolios are formed by buying stocks with clean audit opinions and shorting stocks with MAOs.

*, **, and *** denote two-tailed statistical significance at the 10%, 5%, and 1% level, respectively.