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

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 less sophisticated in assimilating value-relevant information such as modified audit opinions (MAOs). In addition, China permits audit modifications triggered by violations of the generally accepted accounting principles (GAAP) or disclosure rules (GAAP/DISC MAOs), which are subtler than going concern opinions (GCOs) in their value implications and thus are more likely to be mispriced. The Chinese stock market thus gives us the best chance of detecting MAO mispricing. We find that MAOs predict firms' future financial performance, and that the market reaction during the short window around MAO disclosure is also consistent with such predictive power of MAOs. 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 use this important information in pricing securities due to information processing bias.

Keywords: audit modifications; information content; capital market efficiency

JEL Classifications: G14; M42

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 the transfer of wealth from shareholders to other parties. 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. 2015), 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) note, "While theory suggests that auditors enhance the credibility of financial reports, empirical research has provided surprisingly little evidence to substantiate it."

We revisit this issue by taking advantage of a more powerful research setting in China to test mispricing of MAOs if any. The emerging Chinese stock market is dominated by small individual investors who are likely to be less sophisticated. As argued by Taffler et al. (2004) and Kausar et al. (2013), 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. China is thus a setting where value relevant information contained in audit opinions is most likely to be ignored and mispriced. Second and more interestingly, 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 GAAP or disclosure rules (GAAP/DISC MAOs). These two types of audit modifications differ in nature, with the latter reflecting auditors' concerns about the integrity of clients' accounting or disclosure transparency rather than financial viability. The value implications of GAAP/DISC MAOs thus cannot be inferred from the previous GCO-based studies. Compared with GCOs, GAAP/DISC MAOs should have a subtler implication in equity valuation. If audit opinion mispricing exists, it should be more identifiable in GAAP/DISC MAOs than in GCOs. Thus, investigating

GAAP/DISC MAOs increases the power of mispricing tests (Bradshaw et al. 2001). 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's experimental setting gives mispricing of audit opinions a better chance of being detected if it does exist. Evidence from such a setting represents the lower-bound estimate of the effectiveness of investors' information processing and assimilating ability.

Methodologically, we adopt a more comprehensive approach, different from prior studies in two important ways. First, previous studies have assumed that audits are of high quality and that 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 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. Menon and Williams (2010) is a recent example. However, contemporaneous price response evidence alone is not sufficient to conclude the informativeness of audit opinions as investors can over- or under-react. To fully understand MAO mispricing, we extend the measurement window to further assess post-MAO stock returns.

In sum, we ask the following two questions in this study. Are audit opinions in China relevant in predicting client firms' future performance and thus useful in valuation? If so, do Chinese investors rationally use the information contained in audit reports? To answer the first question, we investigate how audit opinions predict firms' future financial performance. We find that MAOs strongly predict recipients' one-year-ahead underperformance relative to non-MAO firms. Moreover, the mean reversion pattern of MAO firms' financial performance differs significantly from that of other firms in that poor performers have a significantly slower recovery rate (i.e., poor performance is more persistent for MAO recipients) while good performers have a much faster decay rate in their financial performance (i.e., MAO firms' good performance is largely transitory). To answer the second question, 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 when MAO recipients exhibit poorer performance in the current year, which is consistent with the greater persistence of MAO firms' poor financial performance. 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 evidence on negative 12-month stock returns following MAO announcements. This result is robust to various measurements of abnormal returns, return computation methods (buy-and-hold vs. cumulative), and data analysis approaches (univariate portfolio vs. multivariate regression analysis and pooled vs. Fama-MacBeth (1973) type time-series data). Taken together, our evidence supports the usefulness of audit reports in a powerful test setting.

Our contributions to accounting research and practice are three-fold. First, we provide consistent evidence for the informativeness of modified audit opinions in a more powerful research setting. Second, by examining audit modifications triggered by violations of GAAP or disclosure rules (i.e., GAAP/DISC MAOs), we add new evidence to 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. This type of evidence helps to answer 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 is of implications for the recent changes in audit reports' form and content, as proposed by the Public Company Accounting Oversight Board (PCAOB 2013) and the International Auditing and Assurance Standards Board (IAASB 2011). All these proposed changes to improve the structure and wording of the auditor's report are based on an underlying assumption that audit-related information is used effectively in assessing firms' financial condition, performance, and value. Our findings suggest that investors in China use the value-relevant audit information in pricing stocks in an unbiased manner, and thus support the regulatory initiative that additional information should be provided to users through audit reports.

2. Background of Research

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, especially when the report refers to a financing problem. Nevertheless, the debate goes on: Myers et al. (2015) show that there is no detectable 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 under-react, the observation of negative market reactions to qualified audit opinions does not necessarily mean such information being incorporated into security prices in a rational way.[1] This can also be 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

[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, which could lead to the negative market reaction. In a similar vein, the market may under-estimate the negative implications of MAOs and thus under-react, even if researchers observe the negative responses when MAOs are disclosed.

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. Consistent 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) argue that investors tend to deny the bad news conveyed by GCOs, as recognized by these authors and emphasized by Basu (2004), an alternative explanation for the "anomalous" results is that high transaction costs impede rational investors from exploiting the anomaly. Adding to the debate over the market efficiency regarding audit opinions, recent 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. Stock market and audit reporting in China

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

[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."

stock market, exceeded only by the U.S.[3] In October 2002, the Chinese Securities Regulatory Commission (CSRC), the equivalent of the Securities and Exchange Commission in the U.S., issued the first Sino-foreign fund management 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 China's 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 that large investors, including institutional investors, do not dominate the market (*Security Times*, January 4, 2003). Although recent years have observed 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). Small investors overall tend to be less sophisticated and 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 the mispricing of audit opinions.

Three other characteristics of China's stock market also make it a desirable setting for testing the possible mispricing of audit opinions. 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 should magnify the mispricing of problematic firms' stocks, including those of MAO firms. Second, China's stock market is highly liquid, as evidenced by their high turnover ratio. During our sample period, the average monthly turnover ratio

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

[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.

for the A-share stocks was 38.06%, ranking China top among the 31 emerging markets investigated by Rouwenhorst (1999).[5] As we show 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.

In tandem with the rapid development of stock market, the Chinese audit industry has grown phenomenally. In 2013, total industry revenues reached RMB56.3 billion (XinHua Net, May 2014), which represents a growth of 511.8% relative to 2002 and ranks the Chinese audit market among the major audit markets in the world. According to China's Independent Auditing Standards (CIAS), there are four types of audit opinions: unqualified, qualified, disclaimer, and adverse. The CIAS also stipulates that explanatory notes can be used 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), we consider this type of audit opinion as one form of qualifications.

We use the term of "GAAP/DISC" to be as comprehensive as possible, because the reasons for such modifications include both direct violations of GAAP and issues that are of a disclosure nature.[6] In our sample, more than half of MAOs are issued under such reasons. Unlike previous research focusing on GCOs, we are thus able to study the effects of auditors' concerns about the application of GAAP or disclosure issues on securities pricing. Intuitively, the interpretation of GCOs should be more straightforward than the GAAP/DISC-type opinions in the context of equity valuation; that is,

[5] Consistent with Rouwenhorst (1999), we first compute the median turnover by month across firms and then take the time series average of these monthly medians. Although Rouwenhorst (1999) did not include China, Taiwan and Korea have the highest median monthly share turnover ratios, at 30.22% and 8.13%, respectively, in his sample.

[6] For example, auditors may cast doubt about firms' material contingencies/commitments, or emphasize transactions with related parties or questionable business transactions. See Chen et al. (2001, Table 2) for more details on typical reasons underlying MAOs in China.

the former is the red flag raised by auditors over the firms' financial health and the latter represents auditors' doubts over the accounting for or disclosure of economic transactions/activities and could be issued to firms that do not exhibit signs of financial distress. We therefore expect that investors are more likely to misinterpret the value implications of GAAP/DISC MAOs than of GCOs. As Bradshaw et al. (2001) argue, mispricing should be more likely to occur for more complex matters, and lack of evidence on mispricing could be due to the Type II errors in statistical inferences. To the extent that the market is more likely to misprice GAAP/DISC-type audit opinions than GCOs, our research setting has an added advantage of increased statistical power.

3. Research Methodology

3.1. Audit opinions and future financial performance

To establish the usefulness of audit opinion information, a necessary first step is to examine whether audit opinion modifications predict firms' future financial performance. Following Sloan (1996), we investigate the link between current audit opinions and one-year-ahead financial performance. Consistent with Piotroski (2000) and Mohanram (2005), we measure firms' financial performance by their profitability, financial risk, and operating efficiency. Specifically, the following variables are used to measure these aspects:

ROA = Operating income, adjusted for net interest expenses, divided by the average of beginning and ending total assets.[7]

OCF = Operating cash flow divided by the average of beginning and ending total assets.[8]

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

[7] 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.

[8] 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.

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 measures by running a by-year factor analysis of the abovementioned eight fundamental variables. The variable of *F-Score* is the first factor score obtained from the factor analysis. Because factor scores are standardized to have a zero mean and unit variance, *F-Score* itself is its unexpected component [i.e., E(*F-Score*) = 0]. For our data, a higher *F-Score* indicates stronger performance.[9]

We expect GC in year *t* to be negatively correlated with *F-Score* in *t*+1 because GCOs represent the auditors' adverse opinions regarding firms' ability to continue as a going concern. Although GAAP/DISC MAOs may not have a direct bearing on firms' future financial viability, the violation of GAAP or disclosure rules *per se* indicates misrepresentation in financial reporting. Because audit failure costs are asymmetrically higher for overstatements than for understatements, auditors are more concerned with performance overstatements (St. Pierre and Anderson 1984). Consistent with this

[9] The *F-Score* is negatively correlated with *Loss*, *Negative OCF*, and *Leverage* and is positively correlated with the other fundamentals) ($p < 0.001$ for all correlation coefficients). With annual mean eigenvalues of 2.630, the *F-Score* is able to explain 32.9% of the variability in the fundamental variables. We do not consider the second factor because it provides conflicting signals about firms' performance. For example, this second factor is positively (negatively) correlated with *Negative OCF*, *Liquidity*, and *Gross Margin* (the other fundamentals) and is uncorrelated with *ROA* ($\rho = 0.007$, $p = 0.263$).

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. 1998b; Xie 2001; Richardson et al. 2005). We therefore predict GAAP/DISC MAOs in year *t* to be negatively related to *F-Score* in year *t*+1.

3.2. The abnormal stock return measures

3.1.1. The benchmark-based abnormal returns

To test whether audit opinions are mispriced and thus predict future stock returns, 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. 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.[10] *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.[11]

[10] 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).

[11] Fama and French (1992) demonstrate 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.

(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.

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*

(Footnote continued.)

(2004), Fan et al. (2007), and Jiang et al. (2010), control for these two variables in studying stock price behavior in China.

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 actually due to 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 risk factors could be unknown and thus are not adequately controlled for by researchers (Bernard et al. 1997).

3.1.2. 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 the firms in our sample have a short listing history, this method could lead 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) model factors or Carhart (1997) model factors as follows:

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + \varepsilon, \quad (1)$$

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + u_p UMD_t + \varepsilon, \quad (2)$$

where R_p is portfolio raw returns, R_f is risk-free monthly returns, R_m is the monthly 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 strictly 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.[12] To the extent that factor-mimicking portfolio returns capture returns to risk, time series variation in risk is controlled for in regression models (1) and (2), 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). Financial statement and stock price data are retrieved from the China Stock Market and Accounting Research Database (CSMAR). 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.

We begin with the whole population of Chinese firms listed in the A-share markets between 1995 and 2011 (n = 21,471) on CSMAR's financial statement database. We then delete: (a) 249 observations in the financial industry; (b) 629 observations with missing current financial statement or stock market data; and (c) 159 observations with missing one-year-ahead financial statement or stock market data. The final sample comprises 20,434 firm-year observations for 2,383 unique firms. Because we use one-year-ahead data, the actual financial statement (stock return) data used in this study run from 1995 to 2012 (January 1996 to April 2013).

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

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.[13] In section 6.1, we further consider how returns to these delisted stocks influence our findings.

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. For the whole sample, 1,470 firm-years, or 7.19% of all observations received GAAP/DISC-type audit modifications, and auditors issued GC-type modifications to 712 or 3.48% of firm-year observations.[14]

(Insert Table 1)

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 of firms formed by audit opinion type. In Panel A, both the GAAP/DISC and GC groups

[13] 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.

[14] 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.

underperform the Clean group in *F-Score* and all its components in year *t*. The differences are significant in the t-tests at the 1% level. This suggests that firms that have received GAAP/DISC or GC modifications from their auditors have worse current financial performance than those in the Clean group. In Panel B, we examine whether audit modifications help to predict future financial performance. We find that 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-Score* and all of its components are significant in the t-tests.

(Insert Table 2)

Table 2 also reveals that *F-Score* follows the well-documented mean reversion pattern of financial performance (Nissim and Penman 2001). For example, the Clean group's mean *F-Score* declines from 0.136 in *t* to 0.052 in *t*+1, whereas the GAAP/DISC (GC) group's mean *F-Score* improves from –0.925 (–1.775) in *t* to 0.822 in *t*+1 (–1.449). Generally, such a mean reverting tendency can also be observed in the individual components of *F-Score.* It is important to examine whether the mean reversion of *F_Score* differs between MAO and non-MAO firms. We test this in Table 3, where for each year, we first sort firms into deciles by *F-Score* in year *t* and then track their *F-Score* in year *t*+1. To determine the mean reversion rate, in Panel A, we compute the statistics of *%Reversal* as: $(F\text{-}Score_{t+1} - F\text{-}Score_t) / | F\text{-}Score_t |$. We omit this statistic for middle decile (4–7) groups because $| F\text{-}Score_t |$ for these groups are close to zero and the statistics are subject to the small-denominator problem. The columns headed by "*n*" show the number of observations in each decile group. As one may expect, there are relatively more (less) observations in the lower (upper) half of the panel for the Clean group, and this pattern is reversed for the GAAP/DISC and GC groups. For the Clean group, the mean reversion rate, as evaluated by the *%Reversal* statistics, is higher in the upper half than in the lower half of the panel, i.e., mean reversion is faster when non-MAO firms' *F-Score* is low. This is consistent with Fama and French's (2000) finding that mean reversion is faster when profitability is below the average. More importantly, the mean reversion pattern is quite different for the MAO firms. In the upper half of the panel, the GAAP/DISC and GC groups, compared with the Clean group, have a much slower mean reversion rate. In fact, starting from the 3rd and 2nd deciles, respectively, of the GAAP/DISC and GC groups, the *%Reversal* statistics are negative, i.e., performance deteriorates in *t*+1. This indicates that MAO firms in year *t*+1 may not recover from

poor performance in year *t*; and if they do, the recovery rate is slower than that of non-MAO firms. Turning to the lower half of the panel, we observe the opposite in the magnitude of *%Reversal* statistics: good performers (if any, given the small *n*) of GAAP/DISC and GC groups have a much faster decay rate in *F-Score* than the Clean group. Together, we conclude that the financial performance of MAO firms is highly persistent when the firms exhibit poor performance in the current year. In contrast, MAO firms' performance is highly transitory when they perform well in the current year.

(Insert Table 3)

In the above analysis, we control for the effect of current performance by sorting firms into decile groups. However, one may argue that the control is not adequate because within each decile, MAO firms still display worse performance than non-MAO firms (e.g., the mean $F\text{-}Score_t$ in decile group 1 is –1.531, –2.131, and –2.312, respectively, for the Clean, GAAP/DISC, and GC groups). Because the level of financial performance matters in predicting future performance, as the data in Panel A suggest, we adopt a more rigorous exact match design in Panel B to control for the difference in $F\text{-}Score_t$ between the MAO and non-MAO firms. Specifically, 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. With this exact match, MAO and non-MAO firms have close $F\text{-}Score_t$. For example, for the GAAP/DISC (GC) group, the mean $F\text{-}Score_t$ is –0.925 (–1.775), whereas their matched Clean firms have a mean $F\text{-}Score_t$ of –0.922 (–1.769). The inference from the match design is consistent with that from Panel A: *%Reversal* (or the recovery rate from poor performance) for either GAAP/DISC or GC firms is far lower than that for their respective matched Clean firms.

The Type I/II error rates in audit reporting are often used to assess audit quality.[15] Carson et al. (2013) show that there are about 0.448% of firms file for bankruptcy in the U.S. from 2000 to 2010 and 60.1% of them 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 non-bankruptcy firms. Because no Chinese public firm has ever gone bankruptcy within our sample

[15] Here a Type I error means *false rejection*, i.e. issuing a modified opinion to a client that does not become bankrupt later, and a Type II error means *false acceptance*, i.e., issuing a clean opinion to a client that subsequently goes into bankruptcy.

period, we use the *ex post* realization of $F\text{-}Score_{t+1}$ to assess the MAO accuracy. To approximate the 0.448% bankruptcy incidence rate in Carson et al.'s (2013), we sort firms into 250 quantile groups by $F\text{-}Score_{t+1}$ (so that 0.4% of observations are grouped into each quantile group). The percentages of GAAP/DISC, GC, and total MAOs for each group are plotted in Figure 1. In the far left quantile group (where $F\text{-}Score_{t+1}$ is lowest), 78.1% of observations received MAOs from their auditors in year *t*, indicating a Type II error rate of 21.9%. The percentages of MAOs drop dramatically as one moves to the higher $F\text{-}Score_{t+1}$ quantiles. Starting from the 50th quantile, the MAO rates are generally below 10% and approach zero in the far right quantile group. Thus, the Type I error rates decline when $F\text{-}Score_{t+1}$ increases. This pattern is similar for both GAAP/DISC and GC. We conclude from this exercise that Chinese auditors exhibit a reasonable degree of accuracy in issuing MAOs if benchmarked against clients' future realization of financial performance.

(Insert Figure 1)

Taken together, the evidence from Figure 1, Table 2, and Table 3 supports the intuition that audit opinions predict firms' future financial performance. MAO recipients have significantly worse financial performance in year *t*+1 than non-MAO recipients. Moreover, the poor performance of MAO firms in year *t*+1 can be at least partly attributed to their distinct time-series mean reversion of financial performance; that is, they tend to recover very slowly from poor performance in year *t* but have a much faster decay rate when they exhibit above-average performance in year *t*. These results suggest that audit opinions have the power to predict future performance, probably because auditors have private information about the operations and financial health of their clients. We next study how the market exploits the information contained in audit reports.

5.2. Market reaction to audit opinion modifications

Although market reaction to audit opinions does not constitute sufficient evidence of the rational pricing of audit qualifications, as discussed earlier, we first examine this issue to reconcile with previous research. Figure 2 plots the mean buy-and-hold market-adjusted returns around the announcements of annual financial reports, with a solid line for the Clean group and round and square dotted lines for the GAAP/DISC and GC groups, respectively, from trading days –10 to +10, where

day 0 represents the days when annual financial reports are announced.[16] The buy-and-hold returns 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 cumulative returns largely level off. Untabulated statistics suggest that the means of buy-and-hold market-adjusted returns up to day +2 are 0.25%, –1.98%, and –3.21%, respectively, for the Clean, GAAP/DISC, and GC groups. Figure 2 thus suggests that investors respond negatively to both types of MAOs.[17]

(Insert Figure 2)

As previously shown, MAOs are associated with poor financial performance captured by *F-Score*$_t$. To examine whether information in audit opinions is incremental to *F-Score*$_t$, we estimate the following multivariate regression:

$$BHMAR_{[0,+1]} = \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \gamma_1 F\text{-}Score_t + \gamma_2 LagRET_t + \varepsilon, \quad (3)$$

where $BHMAR_{[0,+1]}$ is the buy-and-hold market-adjusted returns from day 0 to +1, with day 0 being the annual report announcement day; *GAAP/DISC* and *GC* are indicators for firms that receive GAAP/disclosure- and GC-related modifications from auditors, respectively; *F-Score*$_t$ is as previously defined; $LagRET_t$ is the buy-and-hold market-adjusted returns from one week after earnings announcement in year *t*-1 to day –1; and ε is the regression error term. We control the fundamental variable, *F-Score*$_t$, which covaries with audit qualifications and likely influences stock prices concurrently. Following Brown et al. (1987), we also include $LagRET_t$ as a control for information released before the [0, +1] window and possible measurement errors in the independent variables. Its

[16] Not surprisingly, the results are similar if we use *Size-B/M* reference portfolio adjusted returns. For short windows, the daily expected returns are close to zero and the choice of expected returns does not have a big effect on inferences (Fama 1998).

[17] Figure 2 also suggests that the negative market reaction to GAAP/DISC (GC) occurs as early as day –7 (–8). The auditor's opinion is classified as inside information according to China's Securities Law and the specific type of audit opinions are unknown to the market before the formal announcements. We confirm such a practice with a senior audit partner in China and an official at the CSRC. However, MAO firms usually have a longer reporting lag than other firms (Haw et al. 2003). The absence of disclosing financial reports on time implies forthcoming audit modifications, allowing investors to infer the type of audit opinions even before the actual announcements.

coefficient, γ_2, is expected to be negative.[18]

The regression results are presented in Table 4. In Model (1), before controlling for *F-Score*$_t$, the coefficients on *GAAP/DISC*$_t$ and *GC*$_t$ are both negative and statistically significant at the 10 and 1% levels, respectively. The inclusion of *F-Score*$_t$ in the regression in Model (2) renders the coefficient on *GAAP/DISC* insignificant, although the coefficient on *GC* remains significantly negative. Thus, part of the negative market reaction to the GAAP/DISC-type MAOs is driven by the poor performance of this group of firms. In light of the different persistence patterns of *F-Score* between MAO and non-MAO firms in Table 3, we allow the slope coefficient on *F-Score*$_t$ to vary by types of audit opinions by adding two interaction terms, *F-Score*$_t$×*GAAP/DISC*$_t$ and *F-Score*$_t$×*GC*$_t$, to Model (3). With this specification, neither *GAAP/DISC*$_t$ nor *GC*$_t$ loads with a statistical significant coefficient. However, both coefficients on *F-Score*$_t$×*GAAP/DISC*$_t$ and *F-Score*$_t$×*GC*$_t$ are significantly positive. Because MAO firms have significantly worse *F-Score*$_t$ than non-MAO firms, the negative reaction to MAOs in Figure 2 or Models (1) or (2) is conditional on the *F-Score*$_t$ variable. To see this, the slope coefficient on the GAAP/DISC group is 0.006 (= 0.001 + 0.004, allowing for rounding error) and its mean of *F-Score*$_t$ is –0.925. Thus, the total average effect of earnings announcements on stock prices of GAAP/DISC firms during the [0, +1] window is estimated as: –1.13% (= –0.008 + 0.002 + 0.006×–0.925, where –0.008 is the regression intercept and 0.002 is the coefficient on the main effect of *GAAP/DISC*$_t$). Likewise, the average firms in the GC group experience a drop in market value by –1.80% mainly due to its poor *F-Score*$_t$. Moreover, in Table 3 we have observed that MAO firms' *F-Score* is more persistent than that of non-MAO firms when *F-Score* is below its average (and the majority of MAO firms have below-average *F-Score*). The differential slopes on *F-Score*$_t$ between MAO and non-MAO firms are consistent with the notion that investors' response to information depends on its persistence (Kormendi and Lipe 1987).

[18] Because part of information innovation in audit opinions and fundamentals could be released to the market through other channels before the annual report announcements, variables *GAAP/DISC*$_t$, *GC*$_t$ and *F-Score*$_t$ measure surprise to the market with errors. To the extent that *LagRET*$_t$ is positively correlated with information innovation not captured by independent variables in equation (3) but uncorrelated with the dependent variable *BHMAR*$_{[0, +1]}$ (due to the fact that stock returns are serially uncorrelated), including the *LagRET*$_t$ variable reduces the effects of measurement errors in estimating the effects of audit opinion and fundamental variables on short-term market reactions.

(Insert Table 4)

To summarize, the analysis of market reaction to audit opinions suggests that MAOs have a negative effect on share prices. Moreover, it appears that Chinese investors are sophisticated enough to understand the implications of MAOs for the persistence of fundamental signals as captured by *F-Score* 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 assigns a smaller valuation coefficient to audit modifications relative to their actual predictability for performance in the subsequent year. If so, 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. This suggests that part of the future returns can be predicted by the information that is contained in current audit reports. Therefore, we perform the portfolio test to examine the predictability of future returns by audit opinions.

Table 5 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 of stock returns among observations (Fama and MacBeth 1973) and helps to evaluate whether some unspecified risk factors influence the results (Bernard et al. 1997).

(Insert Table 5)

The overall evidence in Panels A and B of Table 5 does not suggest a negative relation between MAOs and stock returns in year t+1. 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; that is, the mean returns are –0.050 (t = –1.79) and –0.055 (t = –1.56), 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.[19] 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, probably representing compensation for the higher risks associated with such stocks.[20]

5.3.2. Multivariate regression analysis

To facilitate the control of other variables that are correlated with both stock returns and audit modifications, we estimate multivariate regressions to examine the relation between audit modifications and future stock returns based on the following model:

$$BHAR_{t+1} = \alpha_0 + \beta_1 GAAP/DISC_t + \beta_2 GC_t + \gamma_1 R(B/M_t) + \gamma_2 R(Size_t) + \gamma_3 R(*ARET_t) + \gamma_4 F\text{-}Score_t + \gamma_5 EQO_t + \gamma_6 Delist_t + \gamma_7 RP\ Loan_t + \gamma_8 Age_t + \delta_t + \zeta_k + \varepsilon. \quad (4)$$

The dependent variable $BHAR_{t+1}$ stands for buy-and-hold stock returns. We control for the effects of book-to-market ratio and firm size on stock returns by *B/M* and *Size*. Because MAO firms have experienced negative returns in the current year and the momentum anomaly literature suggests that negative stock returns could persist into the future (Jegadeesh and Titman 1993), we also consider the 12-month market- or portfolio-adjusted stock returns beginning in May of year *t* ($MARET_t$ or $PARET_t$) as a control variable. In light of the poor financial performance of MAO firms in the current year and the possible effect of current financial performance on future returns (Bernard and Thomas 1989), we

[19] Harvey et al. (2016) note that extensive data mining in financial economics makes the usual criteria for establishing significance less useful and suggest a t-statistic greater than 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.

[20] In columns 1 and 2 of Table 5, we use the equally-weighted market or portfolio returns, respectively. We also try the value-weighted market or portfolio returns. We find that the abnormal returns to MAO firms are generally more *positive* than those reported because the average returns to large stocks are lower than those to small stocks, and therefore, value-weighted market or portfolio returns are smaller than corresponding equally-weighted measures.

include the $F\text{-}Score_t$ variable, as defined before. 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. Evidence from the U.S. indicates that equity offerings are followed by the under-performance of stock returns (Loughran and Ritter 1995; Spiess and Affleck-Graves 1995; Teoh et al. 1998a). 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 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 more risky, auditors are more likely to issue MAOs to such clients and their expected stock returns may not be captured by conventional measures. We use a dummy variable, $Delist_t$, 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. Jiang et al. (2010) find that the existence of related-party loans triggers the issuance of MAOs by the auditor and is negatively associated with future stock returns. We use variable $RP\ Loan_t$, defined as the balance of loans to related parties, scaled by total assets, at the end of year t, 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. Meanwhile, firms with a longer listing age are also more mature, suggesting a lower risk and thus lower expected returns. We add Age_t, defined as the number of years a company has been listed by end of year t, as another covariate. Finally, we include year and industry indicators to control for any possible time or industry effects on stock returns, as indicated by δ_t and ζ_k.

Although we only report results for the buy-and-hold stock returns, the results based on cumulative returns yield qualitatively the same inferences. Similar to the analysis in the previous section, we use five different stock return metrics. When $BHAR_{t+1}$ is the portfolio-adjusted returns, we use $PARET_t$, i.e., portfolio-adjusted returns in t, and $MARET_t$, i.e., 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 denoted by the R(•) operator, reduces the possible undue influences of extreme values and accommodates a monotonic non-linear

relationship between future returns and these variables. As the scaled rankings are between 0 and 1, the coefficients on these ranked variables can be directly interpreted as the effect of changing from average observations in the bottom decile to those in the top decile on stock returns. We winsorize the two continuous variables, *F-Score*$_t$ and *RP Loan*$_t$, at the bottom and top percentiles of their respective annual distributions. The regressions are estimated on both the pooled and annual samples. For the pooled regressions, we cluster the standard errors at the firm level to correct for biased standard errors due to cross-correlated residuals in asset pricing studies (Petersen 2009). For the annual sample regressions, statistical inferences are based on the Fama and MacBeth (1973) procedure; that is, statistical tests are based on the time-series variation of the annual coefficients. As noted, this procedure adjusts the dependence of residuals among observations, and the time-series pattern of regression coefficients also helps to assess whether the variables are consistently related to future abnormal returns over time (Bernard et al. 1997).[21]

Table 6 shows the descriptive statistics for independent variables used in model (4). Compared with the Clean group, the GAAP/DISC or GC group has lower *B*/*M*, smaller *Size*, and inferior stock and financial performance in the current year as indicated by the lower *MARET*, *PARET*, and *F-Score*. In addition, it has a higher *Delist* risk and is less likely to conduct equity offerings (*EQO*) and more likely to lend to related parties (*RP Loan*). The differences in the abovementioned variables are all significant at the 1% level in both the mean and median values. Finally, 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. The differences between MAO and non-MAO firms in the above aspects necessitate the control of these variables in regressions.

(Insert Table 6)

The regression results are reported in Table 7. For the pooled regressions in Panel A, none of the coefficients on *GAAP/DISC* are statistically significant, and their magnitude suggests that the post-MAO abnormal returns to *GAAP/DISC* firms are between –0.035 and –0.024, which are not

[21] In our data, there is no GC-type MAO in 1995 and 1996, and no observation takes a value of 1 in the *Delist* variable in 1995. The *RP Loan*$_t$ variable is based on the disclosure of related-party transactions, starting in 1997. Therefore, in the Fama and MacBeth (1973) regressions, the coefficient estimates and t-statistics for *GC*$_t$, *Delist*$_t$, and *RP Loan*$_t$ variables are based on 15, 16, and 15 annual regressions, respectively, rather than 17 annual regressions.

economically significant. 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* are significant with expected signs, suggesting that these are important determinants of stock returns in China.

(Insert Table 7)

Turning to the annual regressions estimated by the Fama and MacBeth (1973) approach in Panel B, we find that *GAAP/DISC* or *GC* never loads with statistically significant coefficients across the columns. The most negative coefficient on *GAAP/DISC* (*GC*) is –0.039 (–0.034) when *B/M*-*Size* matched control (*F-Score* matched control) returns are used. These estimates are hardly significant from an economic standpoint. With respect to the control variables, *Size* and *Delist* are significant at the 5% or lower levels in four out of five regressions, whereas *B*/*M* is significant at the 10% level in only one regression. This evidence suggests 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, the highest variance inflation factor (VIF) is 1.630 for the *GC* variable when the regression dependent variable is *Size*-*B/M* matched control returns. This VIF value is well below the typical cutoff value of 10 for the possible presence of a multicollinearity problem.

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 are based on the assumption 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

one additional factor. For both the GAAP/DISC and GC portfolios, the regression intercepts are not significantly different from zero in either the three- 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 –1.02% and –0.14%, 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 GAAP/DISC or GC 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.

(Insert Table 8)

6. Additional analysis

6.1. The delisting returns

As Kausar et al. (2009) stress, returns to GC firms in the U.S. are highly sensitive to the computation of delisting returns. For Chinese 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. This approach assumes 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 5 and 7. In the multivariate regressions, none of the coefficients on $GAAP/DISC_t$ or GC_t are significantly smaller than zero. Actually, the regressions coefficients change only at the third decimal place, and 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 –0.018 (–0.891) and 0.014 (0.258), respectively.

6.2. Unobservable firm characteristics and stock returns

We use various normal stock return metrics and control for firm attributes that are correlated with MAOs and stock returns in the above analyses. Yet, there may still be some unknown correlated and omitted firm characteristics. Therefore, we adopt the fixed-effect model, which is a common method of controlling for omitted variables in a panel data set (Hausman and Taylor 1981). Specifically, we replace the dependent variable in Model (4) by raw buy-and-hold returns in year t+1 and add firm fixed effects to the model. Because the effects of unobservable firm characteristics on stock returns are captured by the firm fixed effects, the average realized stock returns of the firm are effectively used as its own expected returns in this fixed-effect framework. Therefore, the coefficients on our variables of interest, $GAAP/DISC_t$ and GC_t, estimate abnormal returns specific to the years when the firm has received MAOs from the auditor.

Because the fixed effects only capture time-invariant firm characteristics that affect stock returns, we estimate the fixed-effect models over a five-year rolling window to ensure that firm characteristics are relatively stable in each window. We require that a firm have at least four observations for each period, so that there are sufficient data points to estimate its fixed effects. Table 9 displays the results of the fixed-effect models for the 13 five-year rolling periods. To save space, we only show the coefficient estimates and t-values of the key variables. For $GAAP/DISC_t$, its coefficients are significantly negative (positive) at the conventional level only in two (one) periods. Thus, after controlling for firm-specific fixed characteristics that are associated with realized returns, we find no abnormal returns to GAAP/DISC stocks. As for GC_t, the coefficient estimates are only negative in

three periods and none of them is statistically significant. In fact, the GC_t variable is loaded with significantly positive coefficients for six periods. This means that the average realized returns to GC stocks are positive during these periods, which is contrary to the underreaction interpretation of investor behavior.[22]

(Insert Table 9)

As noted, the fixed-effect model does not control for time-variant effects, and we use a five-year window to mitigate this concern. It remains possible that during the period when firms receive MAOs from auditors, some unobservable firm characteristics have different effects on stock returns, rendering the coefficients on our explanatory variables positively biased. Subject to this caveat, our findings from the firm fixed-effect model do not support the argument that investors underweight the negative information in MAOs.

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

In the above analyses, we examine how MAOs are related to one-year-ahead financial performance and whether MAOs predict one-year-ahead stock returns. It is interesting to examine whether MAO recipients differ from other firms in the long 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 –0.016, –0.628, and –1.056 (–0.060, –0.525, and –0.750), 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 mean 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 of 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 (4) to $BHAR_{t+2}$ or $BHAR_{t+3}$, we find that none of the

[22] Note that the periods examined in Table 9 are *not* independent of each other due to the use of the rolling windows. An untabulated analysis suggests that the significantly positive coefficients on CG_t for the six periods are primarily driven by large positive stock returns realized in 2005 and 2006.

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 coefficient is estimated at –0.043, with a t-value of –1.283 (p = 0.221).[23] 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 recent debate on market efficiency with respect to audit opinions, we revisit this issue using a sample of 20,434 firm-year observations from China between 1995 and 2011. Several of the characteristics of the Chinese stock market make it particularly suitable for examining 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. Given its subtle nature in the equity valuation context, tests based on this type of audit modifications are more powerful. Finally, the short-selling constraint in China also magnifies the mispricing of MAO stocks. We thus have the best chance of detecting the mispricing of audit opinions in China, if this phenomenon is driven by human information processing bias as previous studies conjecture. Moreover, the Chinese stock market is highly liquid in that stocks are actively traded, and the computation of stock returns is less affected by stocks' delisting. These characteristics help us to exclude friction in trading as a potential explanation for mispricing and avoid the complication arising from the computation of delisting returns.

We examine two research questions: one is whether audit opinion is informative of firms' future financial performance, and the other is whether investors use such information effectively. For both questions, our answer is affirmative. MAO recipients significantly underperform other firms in the year following MAOs. Our financial performance persistence analysis shows that MAO firms' decline in future financial performance is due to their slower recovery rate from current poor performance or faster decay rate if their current performance is above the average. An examination of market reaction to MAO announcements suggests that investors react negatively to MAOs, and more importantly, that

[23] The corresponding coefficient estimated by the pooled sample is –0.017 (t = –0.457).

the pattern of market reaction is consistent with the persistence pattern of MAO firms' financial performance. 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. This evidence suggests that there is no delayed response to the information contained in MAOs. Finally, our findings hold for both the GAAP/DISC and GC-type MAOs.

Although we choose China, a setting in which the mispricing of value-relevant audit information is most likely to manifest itself, we find no compelling evidence suggesting long-term post-MAO negative returns. Instead, our evidence suggests that the stock price adjustments to MAOs are speedy and unbiased. It appears that even Chinese investors are sophisticated enough to understand the economic meaning of audit opinions, and incorporate this important information into pricing. In fact, they respond not only to auditors' doubt about firms' financial viability as reflected in GCOs, but also to auditors' warnings about problematic accounting/disclosure practices via GAAP/DISC MAOs. The evidence from GAAP/DISC MAOs is particularly intriguing in that Chinese investors are able to undo the effects of earnings management or disclosure opacity on valuation. Given the more implicit value implications of GAAP/DISC MAOs and higher likelihood of being mispriced, it is difficult to simply ascribe the lack of evidence on mispricing of MAOs to the low power of tests.

Collectively, our evidence casts doubt on the behavior-bias-based mispricing interpretation of GC audit modifications in the mature markets. Due to the differences in the data used, it is not possible for us to reconcile our results with those of Taffler et al. (2004) and Kausar et al. (2009). 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 great information uncertainty associated with GCO recipients, likely reflecting excessively conservative audit reporting to avoid litigation in the U.S. (DeFond and Zhang 2014). For example, Fogel-Yaari and Zhang (2013) show that GCOs in the U.S. contain substantial Type I errors, i.e., a GCO is issued to a client that does not actually fail. Future research may investigate whether frictions due to transaction costs or information uncertainty contribute to the anomalous post-GCO returns in the U.S. or the U.K. For practitioners, the message from this study is that investors do incorporate the information contained in auditor opinions into stock prices in a rational and timely manner. It is therefore meaningful for regulators and auditing

standard setters to continue their efforts in improving the content and structure of auditors' reports (PCAOB 2013; IAASB 2011).

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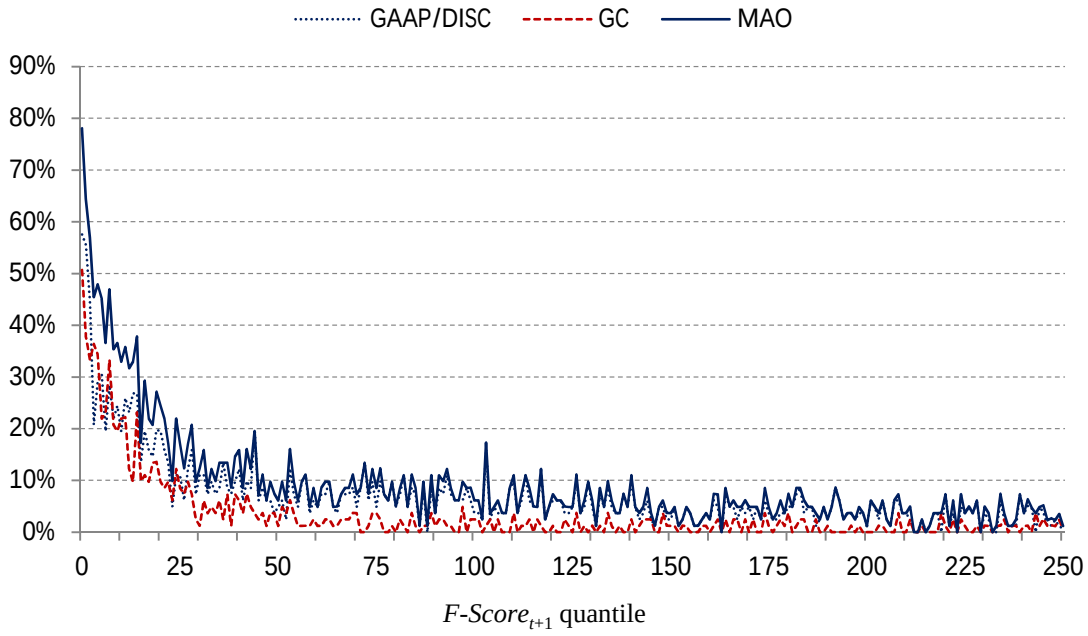
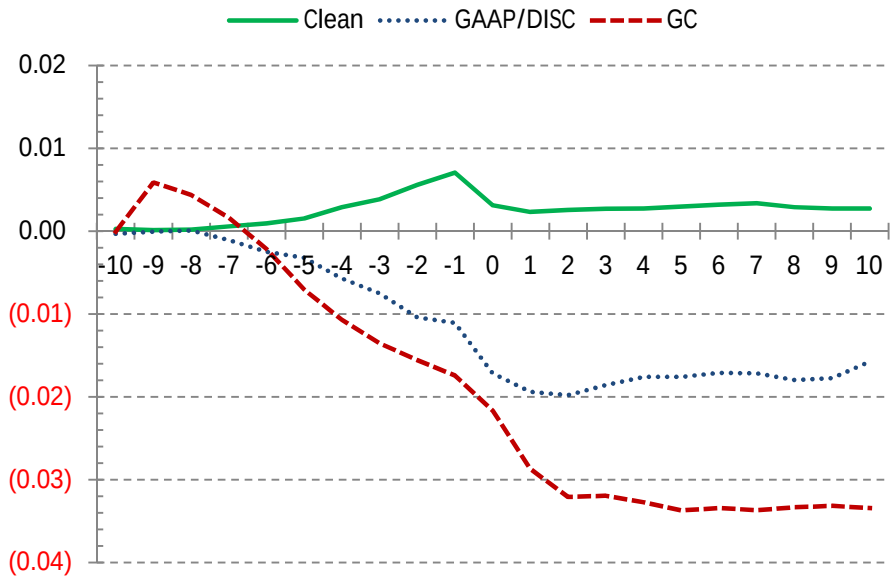
Figure 1

Audit opinions and the realization of future financial performance



Observations are sorted into 250 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 20,135 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	256	49	n/a	305
1997	420	87	3	508
1998	678	139	22	822
1999	731	178	36	917
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	18,541	1,470	712	20,434

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 = 18,541)	GAAP/DISC (n = 1,470)	GC (n = 712)
Panel A: *F-Score* and its component in year t			
F-Score	**0.136**	**–0.925**†	**–1.775**‡
ROA	0.062	–0.018†	–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	0.263	0.204†	0.157‡
Turnover	0.687	0.440†	0.354‡
Panel B: *F-Score* and its component in year t+1			
F-Score	**0.052**	**–0.822**†	**–1.449**‡
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	1.967	1.277†	0.762‡
Gross Margin	0.255	0.210†	0.189‡
Turnover	0.693	0.450†	0.395‡

F-Score = The first factor score obtained from a by-year factor analysis of the following eight fundamental variables.

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

Audit opinions and the persistence of financial performance

Panel A: The *F-Score* in *t* and *t*+1 by decile groups formed by $F\text{-}Score_t$

Decile groups	Clean				GAAP/DISC				GC			
	n	*t*	*t*+1	*%Reversal*	*n*	*t*	*t*+1	*%Reversal*	*n*	*t*	*t*+1	*%Reversal*
1 (Lowest)	1,405	–1.531	–0.744	51.4%	589	–2.131	–1.576	26.0%	531	–2.312	–1.893	18.1%
2	1,786	–0.811	–0.408	49.7%	217	–0.859	–0.672	21.8%	84	–0.912	–1.103	–20.8%
3	1,837	–0.405	–0.268	33.7%	165	–0.406	–0.471	–16.0%	31	–0.403	–0.471	–17.0%
4	1,862	–0.135	–0.154		140	–0.152	–0.249		18	–0.127	–0.955	
5	1,919	0.059	–0.015		81	0.040	–0.216		14	0.007	–1.086	
6	1,935	0.236	0.133		71	0.221	–0.116		8	0.243	–0.350	
7	1,938	0.417	0.288		65	0.415	0.174		6	0.398	–0.716	
8	1,939	0.622	0.457	–26.6%	62	0.619	0.502	–18.8%	6	0.530	–1.014	–291.4%
9	1,959	0.908	0.747	–17.7%	45	0.925	0.592	–36.1%	7	0.913	0.433	–52.6%
10 (Highest)	1,961	1.448	1.229	–15.1%	35	1.439	1.041	–27.7%	7	1.735	–0.918	–152.9%

Panel B: The *F-Score* in *t* and *t*+1 of MAO firms and their Clean pairs matched by $F\text{-}Score_t$

Groups	GAAP/DISC				GC			
	n	*t*	*t*+1	*%Reversal*	*n*	*t*	*t*+1	*%Reversal*
Clean	1,470	–0.922	–0.516	44.1%	712	–1.769	–0.901	49.1%
MAO	1,470	–0.925	–0.822	11.2%	712	–1.775	–1.449	18.3%

In Panel A, for each year, firms are sorted into decile groups by *F-Score* in year *t*. In Panel B, 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. See Table 2 for the definition of *F-Score*.

The numbers in the column headed by "*n*" are the number of observations in each decile group. The numbers in the column labeled "*t*" and "t+1" are the mean values of *F-Score* in year *t* and *t*+1, respectively. *%Reversal* is computed as: $(F\text{-}Score_{t+1} - F\text{-}Score_t) / | F\text{-}Score_t |$.

Table 4

Market's response to modified audit opinions

	Model (1)		Model (2)		Model (3)	
Variables	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	–0.008	–4.730***	–0.008	–4.604***	–0.008	–4.703***
$GAAP/DISC_t$	–0.003	–1.934*	–0.002	–1.101	0.002	0.989
GC_t	–0.012	–5.220***	–0.009	–3.854***	–0.001	–0.258
$LagRET_t$	–0.004	–4.145***	–0.005	–4.799***	–0.004	–4.777***
$F\text{-}Score_t$			0.002	3.951***	0.001	2.467**
$F\text{-}Score_t \times GAAP_t$					0.004	3.066***
$F\text{-}Score_t \times GC_t$					0.004	1.798*
Year/Industry indicators	Included		Included		Included	
N	20,135		20,135		20,135	
Adj. R^2	0.97%		1.07%		1.12%	

The dependent variable is $BHMAR_{[0, +1]}$, the buy-and-hold market-adjusted returns from day 0 to +1, where day 0 is the announcement day of annual reports.

$GAAP/DISC_t$ = 1 if the firm has received a GAAP/disclosure-related MAO from its auditor, and 0 otherwise.

GC_t = 1 if the firm has received a GC-related MAO from its auditor, and 0 otherwise.

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

$F\text{-}Score_t$ = The fundamental score in year *t* (see Table 2 for detailed definition).

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 5

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	–0.050	–0.015	–0.035	0.112	–0.027	0.078	–0.002	0.164
(t-stat.)		(1.25)	(4.01***)		(–1.79*)	(0.04)	(–1.67*)	(3.29***)	(–1.08)	(1.51)	(–0.09)	(3.74***)
[p-value]		[0.210]	[0.000]		[0.074]	[0.969]	[0.095]	[0.001]	[0.279]	[0.133]	[0.932]	[0.000]
A2. Annual sample												
Mean	–0.018	–0.002	0.058	–0.009	–0.055	–0.050	–0.024	0.048	–0.038	0.030	0.017	0.086
(t-stat.)		(0.31)	(0.89)		(–1.56)	(–0.94)	(–0.83)	(0.61)	(–0.60)	(0.39)	(0.66)	(1.14)
[p-value]		[0.759]	[0.387]		[0.135]	[0.361]	[0.417]	[0.551]	[0.554]	[0.705]	[0.516]	[0.274]
Panel B: Cumulative returns												
B1. Pooled sample												
Mean	–0.006	–0.002	0.082	0.000	–0.025	0.018	–0.038	0.044	–0.024	0.028	–0.005	0.092
(t-stat.)		(0.26)	(3.46***)		(–1.98**)	(0.72)	(–3.13***)	(2.01**)	(–1.57)	(0.75)	(–0.35)	(3.38***)
[p-value]		[0.797]	[0.001]		[0.048]	[0.469]	[0.002]	[0.045]	[0.116]	[0.454]	[0.724]	[0.001]
B2. Annual sample												
Mean	–0.002	0.004	0.039	0.006	–0.022	–0.016	–0.030	0.011	–0.020	–0.004	0.014	0.033
(t-stat.)		(0.17)	(0.69)		(–1.29)	(–0.52)	(–1.47)	(0.23)	(–0.69)	(–0.07)	(0.62)	(0.59)
[p-value]		[0.867]	[0.503]		[0.213]	[0.611]	[0.161]	[0.819]	[0.499]	[0.948]	[0.544]	[0.568]

(The table continues on the next page.)

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 6

Descriptive statistics for variables used in multivariate regressions

Variables	Clean (n = 18,541)		GAAP/DISC (n = 1,470)		GC (n = 712)	
	Mean	Median	Mean	Median	Mean	Median
R(B/M_t)	0.522	0.556	0.393†	0.333†	0.146‡	0.000‡
R($Size_t$)	0.515	0.556	0.352†	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	0.395†	0.333†	0.351‡	0.222‡
F-Score$_t$	0.136	0.192	–0.925†	–0.779†	–1.775‡	–2.000‡
EQO_t	0.176	0.000	0.071†	0.000†	0.001‡	0.000‡
$Delist_t$	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	7.543	6.839	7.583	6.832	10.896‡	10.716‡

Definitions of variables:

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.

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.

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

EQO_t = 1if the firm has equity offerings in year t, and 0 otherwise.

$Delist_t$ = 1 if the firm has reported losses in both year 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.

† and ‡ denote that the differences between the Clean and GAAP/DISC and GC groups, respectively, in the mean/median values are significant at the 1% level or beyond in the two-tailed t-/Wilcoxon-test.

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	0.008	0.281	–0.053	–1.846*	0.157	2.672***	0.079	1.243	0.049	0.453
GAAP/DISC$_t$	**–0.026**	**–1.298**	**–0.033**	**–1.618**	**–0.031**	**–1.520**	**–0.035**	**–1.552**	**–0.024**	**–0.746**
GC$_t$	**0.101**	**2.604*****	**0.019**	**0.486**	**0.032**	**0.964**	**0.020**	**0.517**	**0.056**	**1.357**
R(*B/M$_t$*)	0.138	10.426***	0.077	5.487***	0.142	4.563***	0.167	4.837***	0.173	3.446***
R(*Size$_t$*)	–0.212	–16.479***	–0.027	–1.979**	–0.251	–7.838***	–0.266	–7.522***	–0.310	–5.848***
R(*MARET$_t$*) or R(*PARET$_t$*)	0.026	1.949*	0.010	0.734	–0.045	–1.403	0.008	0.242	–0.041	–1.026
F-Score$_t$	0.023	4.302***	0.019	3.448***	0.021	2.001**	0.011	0.946	0.004	0.334
EQO$_t$	0.001	0.150	–0.003	–0.382	0.026	0.918	0.034	1.124	0.026	0.872
Delist$_t$	0.157	4.512***	0.099	2.791***	0.144	4.099***	0.146	3.619***	0.102	2.479**
RP Loan$_t$	–0.013	–0.122	–0.071	–0.665	–0.177	–1.828**	–0.117	–1.015	–0.119	–0.567
Age$_t$	0.001	1.677*	0.002	2.007**	0.001	0.304	0.002	0.670	0.009	2.395**
Year/Industry indicators	Yes		Yes		Yes		Yes		Yes	
# of obs	20,434		20,434		3,716		3,154		3,786	
Adj. R^2	2.13%		0.49%		70.41%		69.83%		65.35%	

(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	0.009	0.140	–0.053	–1.057	0.283	1.600	0.294	1.803**	0.275	1.503
GAAP/DISC$_t$	**–0.016**	**–0.810**	**–0.025**	**–1.406**	**–0.001**	**–0.028**	**–0.039**	**–1.241**	**–0.012**	**–0.975**
GC$_t$	**0.016**	**0.296**	**–0.014**	**–0.335**	**–0.013**	**–0.209**	**–0.025**	**–0.480**	**–0.034**	**–0.845**
R(*B/M$_t$*)	0.151	1.632	0.104	1.871**	0.175	1.585	0.151	1.469	0.177	1.460
R(*Size$_t$*)	–0.220	–3.612***	–0.056	–0.947	–0.216	–2.994***	–0.247	–3.598***	–0.270	–2.972***
R(*MARET$_t$*) or R(*PARET$_t$*)	0.005	0.108	0.023	0.552	–0.074	–1.698	–0.042	–0.718	–0.053	–0.920
F-Score$_t$	0.025	1.085	0.025	1.293	0.015	1.018	0.017	0.926	–0.013	–0.756
EQO$_t$	0.002	0.052	–0.003	–0.083	–0.011	–0.118	0.011	0.110	0.009	0.248
Delist$_t$	0.095	2.823**	0.072	2.656**	0.105	2.355**	0.078	1.260	0.073	2.740**
RP Loan$_t$	–0.051	–0.606	–0.060	–0.787	–0.049	–0.317	0.102	0.455	0.035	0.251
Age$_t$	0.003	0.894	0.002	0.725	0.005	1.108	0.006	1.030	0.013	1.585
Industry indicators	Yes		Yes		Yes		Yes		Yes	
Mean # of obs	1,202		1,202		218.59		185.53		222.71	
Mean Adj. R^2	14.11%		7.07%		12.03%		13.80%		15.53%	

The dependent variables are 12-month buy-and-hold stock returns in year *t*+1. See Table 5 for the definitions of the stock return variables. The independent variables are defined in Table 6.

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$_t$*, 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	0.934	–0.001	–0.340	0.001	0.142	0.002	0.865	0.001	0.132
$R_M - R_F$	1.028	75.971***	1.048	37.384***	1.016	17.701***	–0.020	–0.792	0.004	0.077
SMB	0.568	20.958***	0.947	16.868***	1.283	11.318***	–0.379	–7.373***	–0.692	–6.057***
HML	–0.105	–3.369***	–0.129	–2.000**	–0.286	–1.900*	0.024	0.408	0.071	0.469
# of obs	204		204		180		204		180	
Adj. R^2	97.05%		90.08%		73.65%		20.97%		16.01%	
Panel B: Carhart (1997) four-factor model										
Intercept	0.001	0.943	–0.000	–0.049	0.003	0.592	0.001	0.577	–0.001	–0.244
$R_M - R_F$	1.028	75.374***	1.060	39.106***	1.027	18.947***	–0.032	–1.299	–0.006	–0.103
SMB	0.566	19.116***	0.850	14.433***	1.041	8.781***	–0.284	–5.290***	–0.478	–3.941***
HML	–0.105	–3.341***	–0.170	–2.710***	–0.462	–3.148***	0.065	1.131	0.227	1.512
UMD	–0.005	–0.145	–0.267	–4.162***	–0.634	–4.746***	0.263	4.491***	0.560	4.106***
# of obs	204		204		180		204		180	
Adj. R^2	97.03%		90.83%		76.52%		27.89%		22.95%	

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.

Table 9
Summary of fixed-effect model results

Period	$GAAP/DISC_t$		GC_t	
	Coeff.	t-Stat.	Coeff.	t-Stat.
1995-1999	–0.064	–1.228	0.004	0.028
1996-2000	–0.068	–2.385**	0.076	1.068
1997-2001	–0.046	–2.032**	–0.021	–0.395
1998-2002	–0.012	–0.601	–0.057	–1.327
1999-2003	0.001	0.081	–0.044	–1.639
2000-2004	0.001	0.074	0.008	0.256
2001-2005	0.019	0.362	0.346	4.096***
2002-2006	–0.001	–0.014	0.442	5.149***
2003-2007	0.024	0.374	0.390	4.571***
2004-2008	0.079	1.286	0.289	3.550***
2005-2009	0.175	2.844***	0.280	3.660***
2006-2010	–0.024	–0.724	0.090	2.243**
2007-2011	0.006	0.193	0.039	1.105

The table summarizes the coefficient estimates of $GAAP/DISC_t$ and GC_t variables from fixed-effect models estimated on the five-year rolling windows between 1995 and 2011. The dependent variable is raw buy-and-hold returns over the 12-month period beginning in May of year t+1, and a firm should have at least four valid observations to be included in the samples for fitting the fixed-effect model.