The incremental information content of audit opinion

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Abstract

Purpose – The purpose of this paper is to examine the incremental information content of audit opinion while considering opinion determinants, such as auditor and auditee size, or a firm's financial state.

Design/methodology/approach – A market valuation model is employed using US firm data collected over 30 years. The model relates stock returns to earnings and incorporates as additional variables auditors' opinion types, opinion determinants and their interactions with audit expression.

Findings – The findings suggest that audit opinion has a significant market impact. The estimated positive or negative information content of the audit opinion types is associated with certain opinion determinants, such as auditor and auditee size and a firm's financial state.

Research limitations/implications – Additional firm-year observations regarding certain opinion qualifications could benefit future research.

Practical implications – This study offers useful insights by demonstrating the importance of auditing profession to the users of financial statements. It examines investors' perception of each audit opinion type and the conditions under which this expression has the most serious effects. The results demonstrate the role of audit opinion and its cause-effect relationship with various economic events, allowing regulators not only to track the efficiency of various audit policy changes but also act preventively and amend the regulatory framework.

Originality/value – This paper empirically supports the significance of the auditing process and audit opinions by examining investor perceptions. It employs a value relevance model, in contrast to market-based research that adopts an event study methodology.

Keywords Stock returns, Audit opinion, Auditor's report, Market reaction

Paper type Research paper

1. Introduction

In theory, the auditing process ensures trust, a key factor necessary in the operation of financial markets. It provides legitimacy (Power, 2003) and assures investors, analysts and market competitors that information extracted from financial statements is valid. However, there is some doubt in literature regarding this claim. Rajgopal and Venkatachalam (2011), Biddle *et al.* (2009) and Lev and Zarowin (1999) discuss a systematic decline in the usefulness of financial information for investors. This phenomenon, created by the deterioration in financial reporting quality, is interdependent with the quality of the auditing process (Hope *et al.*, 2013; Walker, 2013), raising questions about the validity that the market attributes to audit expression (Aziz and Omoteso, 2014). Furthermore, a series of corporate collapses shined a spotlight, and thus spurred discussions, on auditor independence (Adelopo, 2009). In this context, this paper attempts to contribute to this discussion by examining whether audit opinion adds credibility and value to financial statements information

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provided to the investing public. By examining US firm data collected for a 30-year period, the empirical analysis explores the differential impact that each audit opinion type has on investor decisions while accounting for audit opinion determinants that simultaneously affect them.

Previous studies have produced sparse and mixed results (Ittonen, 2012). They vividly demonstrated the created antithesis presenting a wide range of results that vary from a positive/negative reaction to the announcement of an auditor's opinion, to a complete lack of it. This illustrates the difficulty in addressing the issue.

This study presents an alternative methodological rationale by employing a variant of the Easton and Harris (1991) model, augmented by a set of intercept and slope dummy variables. The empirical evidence of the study suggests that both unqualified and qualified audit opinions have a significant market impact. These findings support the argument that the positive or negative information content derived from audit opinion types is associated with certain audit opinion determinants, such as auditor and auditee size and a firm's financial well-being. Furthermore, the results show that the findings are consistent, implying that despite the shocks created by various economic events, the value relevance of audit opinion persists.

This paper contributes to auditing literature by focusing on the investing public's validation of audit opinion credibility, first, by studying different patterns in auditing and investment behaviour observed over 30 years. This study implies that both shareholders and potential investors adjust their investment decisions based on the value they attribute to information that accompanies and validates disclosed financial statements. Furthermore the current research results will provide auditors with a useful tool to assess not only the audit opinion types that have significant market impacts but also the conditions under which each opinion has the most serious effect. Finally, the findings demonstrate the role of audit opinion and its cause-effect relationship with various economic events (e.g. stock market crashes, financial crises and expansion periods), allowing regulators to act preventively, amend the regulatory framework when needed and track the efficiency of various audit policy changes.

The remainder of the paper is organised as follows: Section 2 provides a literature review while Section 3 elaborates on methodological issues and focuses on hypothesis development and model formation. Section 4 presents the data employed in the study and Section 5 gives the empirical analysis results. Finally, Section 6 summarises the paper and offers implications for further research.

2. Review of previous research

Prior research examined auditor expression and its effects on investors and highlighted an antithesis created by the contradiction of findings (Ittonen, 2012). Holt and Moizer (1990) attempted a research categorisation, adopted in this study, to outline the research to date (Figure 1).

In this classification, studies are categorised into two main groups: reaction and interpretation research. The "reaction studies" group which examines reader's reaction to the announcement of audit opinion, is further divided into two distinct subgroups – market and experiment-based studies.

Market-based studies examine abnormal returns, potentially created by an auditor's report, employing an event study methodology (Ittonen, 2012). Their results seem contradictory. Some conclude that audit report's announcement has an insignificant effect or no effect at all on stock returns and prices (Al-Thuneibat *et al.*, 2008; Ameen *et al.*, 1994; Baskin 1972; Brito and Peres, 2006; Czernkowski *et al.*, 2010; Davis

1982; Dodd *et al.*, 1984; Firth 1978; Martinez *et al.*, 2004; Mittelstaedt *et al.*, 1992; Pucheta Martínez *et al.*, 2004). Specifically, Ameen *et al.* (1994) dismiss audit reports information emphasising the market's awareness of a problem.

Others have provided evidence that only certain types of qualifications affect investor decisions (Ball *et al.*, 1979; Banks and Kinney, 1982; Citron and Taffler, 1992; Chow and Rice, 1982; Dopuch *et al.*, 1986; Elliott, 1982; Fargher and Wilkins, 1998; Herbohn *et al.*, 2007; Soltani, 2000). Chen *et al.* (2000) examined modified audit opinions showing a negative market reaction. Numata and Takeda (2010) investigated the relationship between audit quality and market response providing evidence of negative stock market reactions to poor quality audit announcements.

The second subgroup – experiment-based studies – employs a questionnaire-based methodological rationale. Test subjects like market or bank analysts, are given hypothetical financial statements along with various types of audit reports and are then asked to make a decision regarding, for example, a loan provision to the subject firm after examining the data provided. This research subcategory, also depicts contradictory findings and demonstrates the above mentioned antithesis. Estes and Reimer (1977), Houghton (1983), Robertson (1988) and Lin *et al.* (2003) argue that the audit report seems to bare no significant influence on the analysts. On the other hand, Firth (1980), Gul (1987), Bessell *et al.* (2003) and Guillamon (2003) stated that an auditor's report is a useful source of information for market participants and that certain types of qualifications affect share prices and financial decisions.

Interpretation studies – the second main group – take for granted that audit reports are important concentrating on their meaning (Holt and Moizer, 1990). This questionnaire-based approach considers how different wordings, meanings and readers create perceptions of the auditor's report importance (Bailey, 1981; Bailey *et al.*, 1983; Craswell, 1985; Dillard and Jensen, 1983; Holt and Moizer, 1990; Hatherly *et al.*, 1991; Innes *et al.*, 1997; Libby, 1979; Miller *et al.*, 1993; Slack *et al.*, 2010).

The qualitative nature of audit expression challenges the attempt to reach a robust conclusion (Lin *et al.*, 2003). Acknowledging these problems, this study focuses on how the market validates audit opinion effects on investors. However, event study methodology the most utilised research approach for the topic (Ittonen, 2012), stumbles upon a noticeable problem: determination of the exact event date. The announcement date of auditor's report is the event date employed for such analysis (Dopuch *et al.*, 1986; Ameen *et al.*, 1994). However, the problem with this date, as discussed by Elliott (1982) and Dopuch *et al.* (1986), is that once the auditor's opinion becomes public it can reach investors on several different occasions.

The date of the report's issuance coincides with that of financial statements, thus creating "noise" and a subsequent difficulty in separating the various effects.

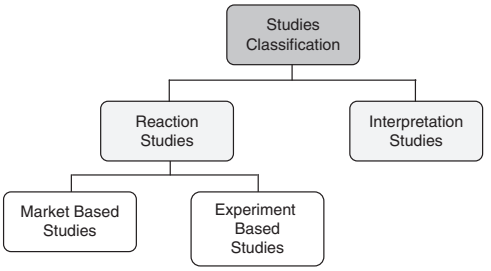

Figure 1.
Previous research classification

Statement on Auditing Standards (SAS) 103 allows identification of the problem. Its provisions stipulate the dating of a report as, either the date when sufficient evidence is obtained to support the auditor's opinion[1] or the date the auditor grants permission to use the report in connection with the financial statements[2]. Thus, the issue of an actual event date is argued to be a grey area.

3. Methodology and hypothesis development

3.1 The relationship between stock returns, earnings and earnings changes

This study's methodological approach employs a value relevance model as a baseline for the estimation procedure. This model is selected for its ability to assess whether accounting and auditing information is used by investors in their valuation of a firm's equity (Barth *et al.*, 2001). It provides useful insights into how audit information impacts investment behaviour, and allows an examination of how specific factors determining audit opinion can affect primary users of financial statements (Concepts Statements No. 8; FASB, 2010) in their market decisions.

To conceptualise the relationship between the market and audit opinion with a value relevance model, several studies were considered that describe the relationship between stock returns or stock prices with various accounting measures (Easton and Harris, 1991; Easton *et al.*, 1992; Feltham and Ohlson, 1995; Harris and Ohlson, 1987; Ohlson, 1995). The choice of a returns model, more specifically, Easton and Harris' (1991) methodology is based on its characteristic of having fewer econometric limitations and its capacity to formally include uncertainty (Landsman and Magliolo, 1988; Kothari and Zimmerman, 1995). Drawing on Chen and Zhang's (2007) attempt to expand Easton and Harris' (1991) model by using other accounting information as explanatory variables for returns, this study employs a variant of Easton and Harris (1991) methodology: it relates stock returns with earnings and earnings changes but also includes audit opinion types and a series of control variables, thus extending the initial model. Easton and Harris' methodology is captured by the following mathematical representation:

$$R_{i,t} = a_0 + a_1 EARN_{i,t} + a_2 \Delta EARN_{i,t} + e_{i,t} \quad (1)$$

$R_{i,t}$ represents stock returns that are estimated by calculating the annual change in the stock price, including dividends by ex-date and paid per share for the current fiscal year, divided by the stock price nine months prior to the fiscal year end. The annual period for the estimation of returns is consistent with the market valuation literature (Easton and Harris, 1991; Easton *et al.*, 1992; Feltham and Ohlson, 1995; Ohlson, 1995), extending over nine months prior to and three months after the fiscal year end. This reasoning is employed to include the influence of financial statement announcements, which public companies have to prepare and present by the end of the third month following the fiscal year end within returns.

$EARN_{it}$ denotes current earnings expressed as earnings per share for firm i in period t and is divided by the beginning of period stock price; $\Delta EARN_{i,t}$ denotes the explanatory power that change in earnings may have over returns, expressed in the form of change in earnings per share for firm i in period t and further divided by the beginning of period stock price.

3.2 Market perception of audit opinion types

This study's approach is based on a simplistic reasoning. It addresses audit opinion market effect by introducing to Equation (1) a series of dichotomous dummy variables,

thus generating the following equation:

$$R_{i,t} = a_0 + a_1 EARN_{i,t} + a_2 \Delta EARN_{i,t} + a_3 UNQOP_{i,t} + a_4 UNQEXP_{i,t} + a_5 QOP_{i,t} + e_{i,t} \quad (2)$$

This rationale attempts not only to capture the relationship between stock returns and audit opinion but also to thoroughly inspect the informative value of each distinct type of auditor report. In addition it aims to understand whether unqualified and qualified[3] auditor opinions can create a market effect. In other words, we model audit opinion expression in Equation (2) in order to examine the following hypothesis:

H1. Audit opinion types have incremental information content.

The categorisation of auditor opinion type used to create the dichotomous variables employed in Equation (2), is based on AU Section 508, Reports on Audited Financial Statements of SAS No. 58. The *UNQOP* variable represents Unqualified Opinion, depicting the type of opinion expressed by the auditor as verification that the financial statements fairly present a firm's financial position. This variable equals 1 if the audit report type falls in this category and 0 otherwise. The same fair representation of the firm's financial information applies to the Unqualified Opinion with Explanatory Paragraph, or *UNQEXP*[4]. The difference in this report type lies in the existence of certain circumstances that, while not affecting the audit opinion, forces the auditor to add an explanatory paragraph. *UNQEXP* is a dichotomous variable that equals 1 if the auditor report falls in this opinion type and 0 otherwise. *QOP* represents Qualified Opinion, demonstrating that the firm's financial information is fairly presented with the exception of the matter to which the qualification relates. This variable takes the value of 1 if the audit report type fits this description, and 0 otherwise (see Table AI for variable description). Statistically significant findings that may arise from estimating Equation (2) allow the identification of those report types that have a market effect whether qualified (*QOP*) or not (*UNQOP*, *UNQEXP*).

3.3 Market perception of audit opinion for big auditors and small, financially distressed auditees

To extend the analysis of market reactions to audit reports, this study introduces auditor size, auditee size and financial distress to Equations (1) and (2); these three factors constitute audit opinion determinants. These determinants were utilised because of their ability to create interactions with audit opinion types. This allows examination as to whether these intervening factors differentially impact the market perception of audit opinions.

Research suggests that there is a significant relationship between auditing firm size and audit opinion (Dye, 1993; Firth, 2002; Francis and Wang, 2008; Ireland, 2003; Krishnan and Stephens, 1996). This suggestion, combined with the fact that auditing firms' size has a positive relationship with audit quality (DeAngelo, 1981a, b; Francis and Yu, 2009; Ireland and Lennox, 2002), triggered our interest in empirically capturing the market impact of audit opinion types issued by a big-sized auditing firm. Large auditing firms seem to provide a higher quality of auditing services since they have more to lose by failing to report problems encountered, thus threatening their high reputation (DeAngelo, 1981a, b). In this context, it is only natural to explore whether opinion types reported by big auditing firms are validated by the investing public as value relevant. Accordingly, the following hypothesis is formulated:

H2a. Auditor size impacts the incremental information content of audit opinion.

Following the same rationale, the utilisation of the relationship between the size of an audited firm and the audit opinion type (Citron and Taffler, 2004; Dopuch *et al.*, 1987; Firth, 2002; Ireland, 2003) enables us to conceptualise whether a specific audit opinion for a small auditee can have a substantial effect on investor decisions. It is implied that auditee size affects a firm's probability to receive a qualification (Afify 2009), therefore the smaller the firm, the more likely that a given uncertainty will be material (Francis and Krishnan, 1999; Monroe and Teh, 1993) and the lower the audit risk will be due to lower complexity and improved internal control (Jallow *et al.*, 2012). In other words, auditee size affects audit opinion, and small firms in particular tend to be negatively affected by the auditor's report issuance. However, a question arises as to whether this notion supports the market perception regarding the opinion types received by small auditees. This study conceptualises the interaction between auditee size and audit opinion types by investigating the following hypothesis:

H2b. Auditee size impacts the incremental information content of audit opinion.

The likelihood of a company's facing financial distress is also considered in the present analysis because the accounting literature regards it as a factor that significantly affects audit opinion (Ruiz-Barbadillo *et al.*, 2009; Carcello and Neal, 2000; Carey and Simnett 2006; Chi and Chin, 2011; Citron and Taffler, 1992; DeFond *et al.*, 2002; Hudaib and Cooke, 2005; Svanberg and Öhman, 2014). Taking this into account, the present study examines whether a firm's financial distress is perceived as important by the investing public when considering the informative value produced by various audit opinion types, leading to the following is hypothesis:

H2c. The likelihood of financial distress for a firm impacts the incremental information content of audit opinion.

With the introduction of the aforementioned factors, this study attempts a second level of analysis by extending Equation (2). These factors are incorporated as dichotomous variables and used to introduce their interactions with the various audit opinion types. Therefore, the addition of these new intercept variables allows one to observe how certain aspects of these factors impact market perception of audit opinion. The mathematical representation for this extended model is represented by following equation:

$$\begin{aligned} R_{i,t} = {} & a_0 + a_1 EARN_{i,t} + a_2 \Delta EARN_{i,t} + a_3 UNQOP_{i,t} + a_4 UNQEXP_{i,t} \\ & + a_5 QOP_{i,t} + a_6 AUDITOR_{i,t} + a_7 SIZE_{i,t} + a_8 FD_{i,t} + a_9 UNQA_{i,t} \\ & + a_{10} UNXPA_{i,t} + a_{11} QOPA_{i,t} + a_{12} UNQSZ_{i,t} + a_{13} UNXPSZ_{i,t} \\ & + a_{14} QOPSZ_{i,t} + a_{15} UNQFD_{i,t} + a_{16} UNXPFD_{i,t} + a_{17} QOPFD_{i,t} + e_{i,t} \end{aligned} \tag{3}$$

This new equation incorporates *AUDITOR*, which represents audit firm size and is constructed as a dichotomous dummy variable that equals 1 if the firm performing the company's audit belonged to either Big 8, Big 6, Big 5 or Big 4 during 1981-2011, and 0 otherwise. *SIZE* is another dichotomous variable that represents the auditee's size. For its construction, the logarithm of the market value of equity is used as a size measure (Fama and French, 1995), and the audited firms are categorised into two distinct groups – small and big auditees – using the median size as an allocation measure. This variable has the value of 1 if the logarithm for each audited firm is smaller than the median logarithm (small firm) and 0 otherwise (big firm). *FD* denotes whether the audited firm has

characteristics of financial distress. For *FD*, Altman's *Z*-score (Altman, 1968) is used as a measure of financial distress. The variable equals 1 if Altman's *Z*-Score for each audited firm is smaller than 1.81, thus representing a financially distressed firm, and 0 otherwise.

The intercept variables depicted in Equation (3) constitute the means by which to examine whether the intervening factors – *AUDITOR*, *SIZE* and *FD* – differentially impact the market perception of audit opinions. Their construction is straightforward because they comprise the interaction among the three intervening factors (*AUDITOR*, *SIZE* and *FD*) and audit opinion types (*UNQOP*, *UNQEXP* and *QOP*). Therefore, the intercept variables *UNQA*, *UNXPA* and *QOPA* are the products of *UNQOP*, *UNQEXP* and *QOP*, respectively, with *AUDITOR* as the dichotomous variable. Each of them represents the three audit opinion types issued solely by big auditing firms. In the same way, *UNQSZ*, *UNXPSZ* and *QOPSZ* comprise the products of the three audit opinion types with *SIZE* as the dichotomous variable, thus representing the three audit opinion types issued for small auditees. Finally, the three audit opinion types, issued for financially distressed auditees, are depicted as *UNQFD*, *UNXPFD* and *QOPFD*, which constitute the respective products of the audit opinion types (*UNQOP*, *UNQEXP* and *QOP*) with *FD* as the dichotomous variable.

The potential statistical significance of the intercept variables included in the extended model enables better understanding of investor behaviour towards audit opinion, thus demonstrating the effects of certain audit opinion determinants on it. Furthermore, by comparing the two models (Equations (2) and (3)), useful information is obtained, concerning whether the informative value of our initial model is increased. Such a comparative analysis can provide useful insights not only for our analysis but also for the returns valuation discussion.

3.4 Market perception of audit opinion – introducing growth and leverage control variables

To ensure the robustness and validity of the estimation results, this study includes in both models (initial and extended) certain proxies to act as controls in the relationship between investor decision reflected in stock returns and audit opinion. More specifically, proxies for growth opportunities and leverage are introduced in Equations (2) and (3). Growth has been a highly utilised control variable for returns or earnings relationships, representing the value of a firm's future investment opportunities and a significant relationship with stock returns (Collins and Kothari, 1989; Chen and Zhang, 2007). Leverage is a control variable that captures the effect of a long-term capital structure (Tsui *et al.*, 2001) and can be associated with returns either positively (Bhandari, 1988; Dhaliwal *et al.*, 2006) or negatively (Korteweg, 2010; Penman *et al.*, 2007). The inclusion of these control variables in both models allows the elimination of potential effects that these proxies might have on returns or audit opinion types and the returns-earnings relationship.

Furthermore, the growth and leverage proxies are used to capture the interaction between these control variables and the three distinct types of audit opinion. In other words, a series of slope variables is constructed to control for potential impact on audit opinion and introduced to Equation (3), in order to achieve a more robust estimation. The mathematical representation of the initial model, Equation (2), with the control variables is depicted in following equation:

$$R_{i,t} = a_0 + a_1 EARN_{i,t} + a_2 \Delta EARN_{i,t} + a_3 UNQOP_{i,t} + a_4 UNQEXP_{i,t} + a_5 QOP_{i,t} + a_6 GROWTH_{i,t} + a_7 LEV_{i,t} + e_{i,t} \quad (4)$$

The *GROWTH* proxy is constructed as the ratio of a firm's market value of equity to its book value of equity, implying that the higher the ratio, the greater the value of

growth opportunities. *LEV*, the proxy for leverage is calculated as the ratio of the firm's long-term debt to its total assets, thus capturing the portion of its assets financed by long-term debt.

Equation (5) allows for an examination of the extended model's robustness because it comprises the mathematical representation of Equation (3) with the addition of the two controls and their interactions with audit opinion types. Equation is as follows:

$$\begin{aligned} R_{i,t} = {} & a_0 + a_1 EARN_{i,t} + a_2 \Delta EARN_{i,t} + a_3 UNQOP_{i,t} + a_4 UNQEXP_{i,t} \\ & + a_5 QOP_{i,t} + a_6 AUDITOR_{i,t} + a_7 SIZE_{i,t} + a_8 FD_{i,t} + a_9 UNQA_{i,t} \\ & + a_{10} UNXPA_{i,t} + a_{11} QOPA_{i,t} + a_{12} UNQSZ_{i,t} + a_{13} UNXPSZ_{i,t} \\ & + a_{14} QOPSZ_{i,t} + a_{15} UNQFD_{i,t} + a_{16} UNXPFD_{i,t} + a_{17} QOPFD_{i,t} \\ & + a_{18} GROWTH_{i,t} + a_{19} LEV_{i,t} + a_{20} UNQG_{i,t} + a_{21} UNXPG_{i,t} \\ & + a_{22} QOPG_{i,t} + a_{23} UNQL_{i,t} + a_{24} UNXPL_{i,t} + a_{25} QOPL_{i,t} + e_{i,t} \end{aligned} \tag{5}$$

The *UNQG*, *UNXPG* and *QOPG* proxies denote the interaction between the *GROWTH* control variable and the audit opinion types (*UNQOP*, *UNQEXP* and *QOP*). Therefore, slope variables *UNQG*, *UNXPG* and *QOPG* are the respective products of *UNQOP*, *UNQEXP* and *QOP* with the *GROWTH* proxy. Moreover, *UNQL*, *UNXPL* and *QOPL* are the products of the three audit opinion types with the *LEV* control variable.

3.5 Market perception of audit opinion – period analysis

The sample comprises data collected for a 30-year span including economic events from 1981 to 2011. During this period, several major events had a profound effect on the stock market as well as the auditing profession and practice. For the analysis to be complete, it is imperative to explore the research question in the context of these important economic events. Thus, the sample is divided into subperiods in an attempt to capture the investing public's changing perception of audit opinions over time. To do so, Equations (2) and (3) are estimated, allowing for a robustness check with (4) and (5) for each of the subsamples created.

These subperiods are constructed using various economic events – perceived as benchmarks in recent financial history – as intersections. The first subsample covers the years 1981-1987, examining the period before the stock market crash in 1987, also known as the Black Monday Crash. The next subsample covers 1988-2002: this precedes some of the biggest corporate scandals (e.g. Enron), the burst of the dot-com bubble and of course, the Arthur Andersen collapse, which led to the Sarbanes-Oxley Act (the SOX Act) in 2002 that deemed fraud detection a priority (Digabriele, 2009). In the context of the market perception of audit opinions, comparing these two subperiods can lead to understanding the reasons behind skepticism of auditing services.

The next subsample covers the subperiod 2003-2006, which examines the years post-SOX Act but before the financial crisis. The comparison of the pre-SOX and post-SOX era can facilitate a better understanding of how the global economy was led into the financial crisis. Finally, the comparison between 2007 and 2009, (the financial crisis period) and 2010-2011 (the post-crisis era) can reveal certain interesting facts about the financial crisis and the market perception of audit opinion.

4. The sample

The sample covers the period 1981-2011 and includes all public companies listed in the New York Stock Exchange, the American Stock Exchange and the NASDAQ stock market. The selected data excludes the financial and insurance sectors due to comparison difficulties with the industrial sectors. All the variables used in this analysis were available in the Compustat North America database. In addition to Compustat's CS active file, the CS research file (comprising firms that merged, delisted or ceased to exist) was also included in the sample, to eradicate potential survivorship bias that the exclusive use of long surviving firms would create. The variable specifications are presented in the Table AI.

The selection procedure resulted in a sample of 3,109 listed firms with 96,379 firm-year observations. However, 55,048 firm-year observations were excluded because no auditing information was available[5]. From the remaining observations, 18 firm-year observations, constituting adverse opinions and disclaimers were excluded because of their small number. In addition, 59 firm-year observations were omitted because they constituted audited firms that, according to Compustat, were left unaudited. The final sample consisted of 41,254 firm-year observations. A stage-by-stage explanation of the sample selection process is presented in Table I.

Table I shows that "Disclaimer" and "Adverse Opinion" are far from being regarded as important in the analysis, with one and 17 firm-year observations, respectively; therefore, they were excluded from the estimation. Furthermore, returns, annual earnings per share and change in earnings per share, divided by the beginning of period price, growth and leverage were winsorized for a fraction of ± 1.5 per cent to limit the occurrence of outliers.

Table II provides descriptive statistics on selected variables of the sample.

Despite using certain sample selection criteria to limit the occurrence of outliers, some extreme values (high and low) still appear. Moreover, examining the descriptive statistics, Table II suggests that the R and $\Delta EARN$ variables present leptokurtic frequency distributions that are more concentrated at the lower end, while the $EARN$ variable presents a negatively skewed leptokurtic frequency distribution with a concentration of frequencies at the higher end.

Table III provides data on the industry sector categorisation of the sample, thus depicting the largest firm concentration in the construction and manufacturing sectors, while the smallest number of companies, based on a SIC code categorisation, comprise firms listed in agriculture, forestry and fishing.

5. Empirical results

To avoid multicollinearity problems, the continuous variables in the data set were tested using Pearson's correlations. The matrix created (Table IV) demonstrates a

Sample's contents	Firm-year observations	
Initial sample		96,379
Missing audit opinion observations		55,048
		41,331
(–) Disclaimer	1	
(–) Adverse opinion	17	
(–) Unaudited	59	77
Final sample		41,254

Table I.
Sample selection process table

Variable	Mean	Median	SD	Max	Min
R	0.238	0.088	0.829	4.091	−0.849
EARN	0.010	0.046	0.189	0.490	−0.818
ΔEARN	0.032	0.008	0.221	1.122	−0.594
UNQOP	0.653	1	0.476	1	0
UNQEXP	0.337	0	0.473	1	0
QOP	0.008	0	0.088	1	0
AUDITOR	0.785	1	0.410	1	0
SIZE	0.282	0	0.450	1	0
FD	0.348	0	0.476	1	0
UNQA	0.513	1	0.500	1	0
UNXPA	0.264	0	0.441	1	0
QOPA	0.007	0	0.081	1	0
UNQSZ	0.504	1	0.500	1	0
UNXPSZ	0.229	0	0.420	1	0
QOPSZ	0.006	0	0.079	1	0
UNQFD	0.192	0	0.394	1	0
UNXPFD	0.148	0	0.355	1	0
QOPFD	0.005	0	0.072	1	0
GROWTH	3.693	2.129	5.107	32.170	0.307
LEV	25.810	20.820	27.230	148.300	0
UNQG	2.518	1.339	4.503	32.170	0
UNXPG	1.238	0	3.615	32.170	0
QOPG	0.027	0	0.620	32.170	0
UNQL	15.260	2.069	22.090	148.300	0
UNXPL	10.730	0	24.830	148.300	0
QOPL	0.299	0	4.501	148.300	0

Notes: The sample consists of 41,254 firm-year observations from the period of 1981-2011. All the data were available by Compustat and refer to firms listed in NYSE, AMEX and NASDAQ. *R*, *EARN*, *ΔEARN*, *GROWTH* and *LEV* have been winsorized for a fraction of ±1.5 per cent. For variable specification see Table AI

Table II.
Summary statistics

SIC code	SIC code description	Companies
0	Agriculture, forestry and fishing	4
1	Mining	120
2	Construction	271
3	Manufacturing	394
4	Transportation, communications, electric, gas and sanitary services	203
5	Wholesale and retail trade	96
7	Hotel, personal, business, repair, A&R and motion picture services	170
8	Health, legal, educational, social, museum, engineering and management services	66
99	Non-classifiable establishments	7
	Total	1,333

Note: SIC code represents the industry sector according to the SIC code categorisation

Table III.
Sample companies according to SIC code categorisation

positive relationship among scaled earnings, scaled earnings changes and growth with returns. These rather low and statistically significant correlation coefficients indicate a low possibility of the existence of multicollinearity. Returns also present a negative and statistically significant correlation with leverage that can again be characterised as low.

For the empirical analysis, a fixed effects regression was implemented using industry- and year-specific effects for the estimation of Equations (2)-(5). This method allows for the fixed industry effects to identify the effect of otherwise unobservable industry characteristics that are stable over time and present a correlation with explanatory variables (Greene, 2000). Furthermore, the incorporation of fixed year effects was preferable to an alternative cross-sectional analysis for each year of the sample period which would have provided inconsistent results and little take away[6] because of the fragmentation of the sample into 31 smaller ones. This study's choice of estimation is consistent with the results of the *F*-test for the joint significance that was implemented, which resulted in favour of incorporating industry- and year-fixed effects (Kousenidis *et al.*, 2013).

5.1 Market perception of audit opinion – full sample multivariate analysis

The initial regression analysis focuses on the estimation of the first two models: Equations (2) and (3). The outcomes of the estimated panel regressions with industry- and year-fixed effects for these models are presented in Table V.

The results of Equation (2) show positive and statistically significant coefficients for the intercept and the independent variables *EARN* and *ΔEARN*. The significance level is 1 per cent for both coefficients and the intercept, providing consistent findings with the multivariate analysis of Easton and Harris' (1991) model. The findings from the three dichotomous variables representing the three types of audit opinion utilised (*UNQOP*, *UNQEXP* and *QOP*) are quite interesting. Specifically, *UNQOP*, *UNQEXP* and *QOP* are insignificant, presenting the possibility that the investing public, seems to be unaffected by the three types of audit opinions. This initial finding is in line with several market-based studies (Ameen *et al.*, 1994; Dodd *et al.*, 1984); however, a final conclusion cannot be drawn merely on the basis of the first estimation. The adjusted R^2 estimation is 0.215, presenting a rather high degree of explanatory power for the initial model compared with the Easton and Harris results.

The findings from the industry- and year-fixed effects regression estimation of the extended model, Equation (3), are presented in Table V. Here, the incorporation of specific factors or determinants of audit opinions (*AUDITOR*, *SIZE* and *FD*) and their interactions with audit opinion types (*UNQOP*, *UNQEXP* and *QOP*), which constitute the intercept variables (*UNQA*, *UNXPA*, *QOPA*, *UNQSZ*, *UNXPSZ*, *QOPSZ*, *UNQFD*, *UNXPFD* and *QOPFD*), provide certain noteworthy estimation outcomes. Once more, the coefficients of *EARN* and *ΔEARN* appear to be significant, presenting a positive relationship with stock returns. The *FD* dichotomous variable presents a statistically significant coefficient, while the newly introduced *AUDITOR* and *SIZE* dichotomous variables, representing big auditing firms and small audited firms, appear to be statistically insignificant for this estimation. The negative sign for the *FD* variable

	R	*EARN*	*ΔEARN*	*GROWTH*	*LEV*
R	1.000				
EARN	0.088***	1.000			
ΔEARN	0.097***	0.311***	1.000		
GROWTH	0.113***	0.134***	0.048***	1.000	
LEV	−0.056***	−0.171***	0.031***	−0.021***	1.000

Note: ***Significant at the 0.01 level (two tailed)

Table IV. Pearson's correlation matrix for continuous variables

	Equation (2)	Equation (3)	Equation (4)	Equation (5)
Intercept	0.388 (2.634)***	1.304 (2.496)**	0.536 (1.798)*	5.302 (2.132)**
EARN	0.240 (5.056)***	0.158 (2.952)***	0.437 (6.800)***	0.289 (3.952)***
ΔEARN	0.167 (4.362)***	0.236 (5.614)***	0.194 (3.963)***	0.260 (4.975)***
UNQOP	0.233 (1.779)*	−0.566 (−1.099)	0.108 (0.331)	0.064 (0.281)
UNQEXP	0.192 (1.463)	−0.593 (−1.150)	0.086 (0.264)	0.066 (0.286)
QOP	0.123 (0.906)	−0.705 (−1.286)	0.003 (0.010)	−0.528 (−0.022)
AUDITOR		−0.701 (−1.633)		4.768 (2.855)***
SIZE		0.028 (1.017)		5.932 (3.040)***
FD		−0.553 (−2.260)**		−0.885 (−9.110)***
UNQA		0.645 (1.502)		4.821 (−2.890)***
UNXPA		0.650 (1.512)		4.830 (−2.893)***
QOPA		−0.769 (−1.683)*		−4.751 (−2.822)***
UNQSZ		0.032 (2.863)***		5.915 (3.029)***
UNXPSZ		0.029 (2.210)**		5.926 (3.036)***
QOPSZ		−0.021 (−1.852)*		(omitted)
UNQFD		0.381 (1.557)		0.723 (7.606)***
UNXPFD		0.377 (1.538)		0.735 (7.692)***
QOPFD		0.427 (1.645)*		0.805 (5.307)***
GROWTH			0.020 (14.624)***	0.645 (3.263)***
LEV			−0.002 (−6.062)***	−0.003 (−2.258)**
UNQG				0.622 (3.145)***
UNXPG				0.631 (3.189)***
QOPG				0.645 (3.262)***
UNQL				−0.003 (−2.597)***
UNXPL				−0.002 (−1.849)*
QOPL				−0.003 (−1.057)
Adj. R^2	0.215	0.224	0.242	0.248
Akaike criterion	73,694.961	68,652.963	60,700.645	57,672.447
n	33,537	31,428	29,074	27,570

Table V.
Panel regression estimation using industry and year fixed effects for the analysis of market perception of audit opinion (full sample 1981-2011)

Notes: Dependent variable: Returns (*R*); values in the brackets represent the *t*-statistic value; coefficient values omitted are dropped from the estimation due to collinearity; the sample consists of 41,254 firm-year observations from the period of 1981-2011. All the data were available by Compustat and refer to firms listed in NYSE, AMEX and NASDAQ. *R*, *EARN*, *ΔEARN*, *GROWTH* and *LEV* have been winsorized for a fraction of ±1.5 per cent. For variable specification see Table AI. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

coefficient seems to concur with the expectation that a financially distressed firm would imply lower market returns.

In this estimation, the coefficients for audit opinion type variables (*UNQOP*, *UNQEXP* and *QOP*) are statistically insignificant, similar to the results of the empirical analysis of Equation (2). However, the intercept variables capturing market's perception of audit opinion under a specific context present certain noteworthy findings. The unqualified types of audit opinion issued by big auditing firms (*UNQA* and *UNXPA*) are statistically insignificant, thus implying an absence of market effect. On the other hand, qualified opinion type issued by big size auditors (*QOPA*) bears statistical significance (10 per cent) and produces a negative coefficient sign. This finding suggests that qualified audit opinion issued by a big auditing firm is perceived as valid by the market, which is then negatively affected by it. Investors recognise the credibility of a qualification resulting from a high-quality auditing process (DeAngelo, 1981a, b), while unqualified opinions seem to be anticipated and market irrelevant.

The same applies to the intercept variables that illustrate the audit expression for financially distressed auditees. The unqualified types of opinion issued for these firms (*UNQFD* and *UNXPFD*) are statistically insignificant, while *QOPFD*, depicting qualified opinions, has a 10 per cent level of statistical significance. This shows that investors perceive audit opinions to be of informative value when issued for companies in a questionable financial state. The focal point in this case is the coefficient sign of the qualified opinion (*QOPFD*). While both the unqualified audit opinions in this case present no real market impact, the qualified opinion positively affects market perception. One can only speculate about an explanation for such a finding. Perhaps, despite the qualified audit report, the market perceives such a company to be in the worst situation; thus, a report of this type, opposed to a disclaimer or an adverse opinion, might as well be considered "good news".

The estimation results that are designed to capture the market impact of audit opinion types related to small auditees (*UNQSZ*, *UNXPSZ* and *QOPSZ*) present a statistically significant relationship with stock returns (1, 5 and 10 per cent, respectively). More specifically, unqualified opinion types present a positive market impact, while the estimation of qualified opinion presents a negative and statistically significant relationship with stock returns, thus implying a negative market perception of such an opinion type when expressed about small firms. These findings demonstrate that both qualified and unqualified audit reports for small firms affect investors by providing information that influences their estimations in terms of either the amount or riskiness of future cash flows (Choi and Jeter, 1992). The data implies that audit expression for small auditees is more likely to provide previously unavailable and unexpected information that can trigger a market reaction because the investing public follows big firms far more closely (Bhushan, 1989; Brennan and Hughes, 1991; Lang and Lundholm, 1996).

The adjusted R^2 of the Equation (3) estimation equals 0.224, demonstrating an improvement from the addition of the various dichotomous and intercept variables. Table V provides a smaller Akaike criterion value of 68,652.963, presenting an improvement in the comparison of this extended value relevance model, Equation (3), with the initial model, Equation (2). These findings provide initial evidence to suggest that the incorporation of certain statistically significant dummy variables adds an incremental value to stock return, thus allowing us not to reject, at least partially, the initial Hypothesis *H1*. Furthermore, these results support the argument that certain types of auditor opinion as expressed under a specific context (*QOPA*, *UNQSZ*, *UNXPSZ*, *QOPSZ* and *QOPFD*) affect market perception, therefore allowing us to provide support for *H2a-H2c*.

5.2 Audit opinion and the introduction of growth and leverage as control variables

To extend the estimation and ensure robust results, two additional Equations (4) and (5), were introduced to the methodological approach. The results from the industry regressions for Equations (4) and (5) estimated with fixed effects are also presented in Table V. Examining the empirical results of Equation (4) and comparing them with Equation (2), it is obvious that the introduction of the two proxies in this model, *GROWTH* and *LEV*, generates certain interesting changes. In terms of explanatory variables, the *EARN* and $\Delta EARN$ variables remain statistically significant, thus validating once more the model's consistency with the findings of Easton and Harris (1991). The *GROWTH* and *LEV* control variables, introduced as proxies to ensure robustness, also bear some statistical significance, demonstrating a positive and

negative relationship, respectively, with returns. Consistent with the estimation of Equation (2), the *UNQOP*, *UNQEXP* and *QOP* variables are insignificant, demonstrating that the investing public, seems to be unaffected by the three types of audit opinions. Nevertheless, a noteworthy point can be traced in the differences between Equations (2) and (4).

Their comparison reveals a drop in the intercept's statistical significance from Equation (2) to Equation (4), a finding that can perhaps be explained by the implied non-zero effect, which the intercept has on all three equations. In addition, the increase in the adjusted R^2 of Equation (4) is 0.242, from 0.215 in the case of Equation (2); this demonstrates an improvement from the addition of the control variables growth and leverage. Table V provides a smaller Akaike criterion figure, equal to 60,700.645, contrary to 73,694.961 in the case of Equation (2). Thus, another improvement is evident in the comparison of the evidently more robust model (Equation (4)) with the initial model (Equation (2)). Thus, it seems obvious that the introduction of specific proxies in the empirical analysis generate an improved model, allowing us to better understand the market perception of audit opinions by achieving more robust results. This supports the choice to incorporate these proxies and their interactions with audit opinion types in the extended model of Equation (3), thus creating Equation (5).

The estimation results of Equation (5) which are presented in Table V, illustrate certain interesting comparisons. The introduction of the two variables *GROWTH* and *LEV*, along with the proxies that show their interactions with audit opinion types (*UNQG*, *UNXPG*, *QOPG*, *UNQL*, *UNXPL* and *QOPL*), control for any potential effects that might otherwise affect the outcomes in the empirical analysis.

The findings from the industry- and year-fixed effects regression estimation of Equation (5) show statistically significant *EARN* and $\Delta EARN$ coefficients; this finding is consistent with the estimation results of Equation (3). The *GROWTH* and *LEV* control variables appear to be statistically significant at the 1 and 5 per cent level, respectively. The *GROWTH* proxy illustrates a positive relationship with stock returns, while the *LEV* control variable demonstrates an inverse relationship with the dependent variable *R*. The slope variables *UNQG*, *UNXPG*, *QOPG*, *UNQL* and *UNXPL*, which act as proxies, appear to be statistically significant, while *QOPL* seems to have an insignificant relationship with market returns.

The *AUDITOR* dichotomous variable presents a positive and statistically significant relationship with the dependent variable, thus implying a direct (positive) relationship between auditing firm's size and returns. There seems to be a positive market reaction if a big auditor performs the audit, perhaps due to the relation between auditor size and audit quality (Walker, 2013). The results of this extended model estimation for the *SIZE* variable also seem consistent with the existence of the size anomaly (Fama and French, 1993, 1995). The positive and statistically significant relationship between small-sized firms and returns seem to verify Fama and French's finding that small-sized firms have room for growth, implying increased future returns. The *FD* dichotomous variable, consistent with the findings of Equation (3), is also statistically significant. Again, the negative sign implies lower market returns for financially distressed firms.

A finding that should be analysed even further is the statistical significance of certain Equation (5) variables reflecting audit opinions that are used to describe and investigate the relationship between the investing public and its perception of audit opinion informative value. Table V shows that all audit opinion types (*UNQOP*, *UNQEXP* and *QOP*) are once again statistically insignificant, showing no relationship between audit

opinion and stock returns. This does not imply that the market perceives these types of opinions as lacking value relevance. Perhaps this can be explained by the fact that market perception can be altered by certain audit opinion types, but only under a specific context. This is captured by incorporating the intercept variables in the model.

More specifically, as shown in Table V, unqualified audit opinion types (*UNQA* and *UNXPA*) and qualified types (*QOPA*) issued by big auditing firms are statistically significant and therefore, affect market returns. Unqualified opinions demonstrate a positive effect on investor's perception when issued by big-sized auditors. However, the findings present a negative relationship between returns and qualified audit opinions issued by big auditing firms, an outcome that validates the negative market impact such opinion types might have. This suggests that "big" auditing firm's audit expression, (qualified or not) will always function as news for investors because of their high quality, triggering a market effect that translates into a stock return reaction.

The intercept variables representing the interaction of auditee size with the various types of audit opinions produce similar results, at least for the unqualified opinion types, (*QOPSZ* is excluded from the estimation because of certain collinearity issues). The *UNQSZ* and *UNXPSZ* intercept variables are positively related to stock returns with a statistical significance level of 1 per cent. This finding shows that the market validates unqualified audit opinion issued for small firms by attributing positive value to them. It provides persistent evidence of the importance of size, and the manner in which an auditor's opinion impacts market's perception.

The *UNQFD*, *UNXPFD* and *QOPFD* intercept variables, which represent audit opinion types for financially distressed firms, depict statistically significant coefficients at the 1 per cent level, demonstrating a market effect. These estimation results can perhaps be explained by the "good news" notion discussed in relation to Equation (3). Unqualified opinions issued for firms facing serious financial challenges (*UNQFD* and *UNXPFD*) seem to positively impact the investing public; perhaps a positive opinion of an underperforming and financially distressed firm signals a positive change of pace to the market. Similarly, the peculiarity of *QOPFD* in Equation (3) persists in Equation (5), which also depicts a positive sign for this intercept variable's coefficient. The absence of a disclaimer or adverse opinion, or the issuance of a qualified opinion, can signify more encouraging prospects for the challenged firm, which might reflect its subsequent positive market impact.

The estimation of Equation (5) is a significant improvement over that of Equation (3). Comparing the two equations' results, it is evident that the addition of the proxies provides us with more precision because of a simultaneous increase in the adjusted R^2 (from 0.224 to 0.248) and the decrease in the Akaike criterion figure (from 68,652.963 to 57,672.447). These results signify the increased ability of Equation (5) to generate answers regarding the market's perception of audit opinion. Estimating this extended model gives us the opportunity not only to check the robustness of the methodological rationale, but also to select a more complex empirical model to address audit opinion informative value. Furthermore, consistent with estimation without the proxies, the same results are achieved, allowing us to reject neither *H1*, nor *H2a*, *H2b* or *H2c*.

5.3 Multivariate analysis of subperiods

Our sample, which covers a period of about 30 years (1981-2011), incorporates a large number of economic events that affected the capital market. Equations (2)-(5) were estimated for a series of subsamples representing subperiods to explore the research question in the context of these economic events. Table VI presents the results of these estimations for the first three subperiods: 1981-1987, 1988-2002 and 2003-2006. This

Table VI. Panel regression estimation using industry and year fixed effects for the analysis of market perception of audit opinion (subperiod analysis 1981-2006)

	1981-1987				1988-2002				2003-2006			
	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)
Intercept	0.070	0.137***	−0.176***	0.314	0.066	1.122*	−0.309	−0.103	−0.451***	−0.190	0.239***	0.558***
	(0.370)	(6.455)	(−3.002)	(0.893)	(0.353)	(1.905)	(−1.246)	(−0.747)	(−3.132)	(−1.217)	(9.438)	(7.332)
EARN	1.303***	1.239***	1.716***	1.656***	0.319***	0.168*	0.555***	0.420***	−0.161	−0.415***	0.013	−0.136
	(10.975)	(9.461)	(10.810)	(10.062)	(4.135)	(1.904)	(5.534)	(3.746)	(−1.372)	(−2.868)	(0.077)	(−0.725)
Δ*EARN*	−0.035	−0.110	−0.118	−0.229	−0.057	−0.021	−0.105	−0.053	0.285***	0.413***	0.479***	0.550***
	(−0.299)	(−0.897)	(−0.832)	(−1.569)	(−0.979)	(−0.343)	(−1.442)	(−0.677)	(2.993)	(3.830)	(3.718)	(4.104)
UNQOP	0.107	0.193**	0.253***	−0.228	0.125	−0.757	0.482*	0.460***	0.888***	0.698***	0.179***	0.027
	(0.553)	(2.350)	(4.294)	(−0.639)	(0.669)	(−1.285)	(1.946)	(3.189)	(6.113)	(4.102)	(7.473)	(0.295)
UNQEXP	(omitted)	(omitted)	(omitted)	(omitted)	0.111	−0.853	0.511**	0.409***	0.690***	0.640***	(omitted)	(omitted)
	–	–	–	–	(0.595)	(−1.442)	(2.062)	(2.639)	(4.770)	(4.399)	–	–
QOP	0.106	0.236	−0.222***	(omitted)	−0.417*	(omitted)	−0.115	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
	(0.540)	(0.943)	(−3.257)	–	(−1.945)	–	(−0.430)	–	–	–	–	–
AUDITOR		(omitted)		−0.327		−0.378		0.105		−0.201***		−0.228***
		–		(−0.977)		(−0.854)		(0.914)		(−3.953)		(−3.841)
SIZE		−0.093		−0.014		(omitted)		0.062***		0.091***		−0.050
		(−1.386)		(−0.786)		–		(2.719)		(3.031)		(−1.367)
FD		−0.112		−0.046*		−0.918**		−0.027		−0.217***		−0.267***
		(−0.437)		(−1.707)		(−1.960)		(−0.121)		(−6.204)		(−4.702)
UNQA		−0.063		0.286		0.341		−0.137		0.036		0.039
		(−1.342)		(0.846)		(0.768)		(−1.153)		(0.517)		(0.497)
UNXPA		(omitted)		(omitted)		0.346		−0.184		(omitted)		(omitted)
		–		–		(0.776)		(−1.387)		–		–
QOPA		−0.195		(omitted)		1.053**		0.035		(omitted)		(omitted)
		(−0.802)		–		(2.230)		(0.313)		–		–
UNQSZ		−0.090		(omitted)		0.111***		0.157***		0.117**		(omitted)
		(−1.313)		–		(6.571)		(5.585)		(2.545)		–
UNXPSZ		(omitted)		(omitted)		0.032		(omitted)		(omitted)		−0.133***
		–		–		(1.465)		–		–		(−2.915)
QOPSZ		(omitted)		0.075		−1.510**		(omitted)		(omitted)		(omitted)
		–		(0.980)		(−2.468)		–		–		–
UNQFD		0.068		(omitted)		0.724		−0.118		−0.086		(omitted)
		(0.266)		–		(1.548)		(−0.522)		(−1.517)		–
UNXPFD		(omitted)		(omitted)		0.712		−0.102		(omitted)		0.111*
		–		–		(1.520)		(−0.448)		–		(1.654)

(*continued*)

Table VI.

	1981-1987				1988-2002				2003-2006			
	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)
QOPFD		0.090		0.021		0.924*		(omitted)		(omitted)		(omitted)
		(0.329)		(0.157)		(1.846)		–		–		–
GROWTH			0.031***	0.038***			0.022***	0.067**			0.015***	0.012***
			(5.149)	(5.132)			(9.703)	(2.176)			(4.651)	(2.592)
LEV			−0.000	−0.002			−0.003***	0.017***			−0.003***	−0.001
			(−0.528)	(−1.322)			(−7.200)	(30.335)			(−4.435)	(−0.503)
UNQG				(omitted)				0.089***				(omitted)
				–				(2.868)				–
UNXPG				(omitted)				0.085***				−0.001
				–				(2.740)				(−0.166)
QOPG				−0.035***				0.084***				(omitted)
				(−2.912)				(3.133)				–
UNQL				0.003				−0.020***				(omitted)
				(1.579)				(−25.245)				–
UNXPL				(omitted)				−0.018***				−0.001
				–				(−15.566)				(−0.352)
QOPL				0.004				−0.029***				(omitted)
				(1.353)				(−7.608)				–
Adj. R^2	0.121	0.105	0.168	0.157	0.006	0.021	0.035	0.041	0.015	0.033	0.035	0.048
Akaike criterion	5,155.141	4,590.631	4,404.204	3,938.358	30,859.905	28,381.444	25,680.981	24,365.893	17,510.566	16,434.155	14,167.305	13,660.745
n	3,232	2,988	2,925	2,738	13,793	12,789	12,058	11,340	6,445	6,068	5,444	5,223

Notes: Dependent variable: Returns (*R*); values in the brackets represent the *t*-statistic value; coefficient values omitted, are dropped from the estimation due to collinearity; the sample consists of 41,254 firm-year observations from the period of 1981-2011. All the data were available by Compustat and refer to firms listed in NYSE, AMEX and NASDAQ. *R*, *EARN*, *ΔEARN*, *GROWTH* and *LEV* have been winsorized for a fraction of ±1.5 per cent. For variable specification see Table AI. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

table depicts the market's perception of audit opinion types, demonstrating the differential impact that specific aspects of audit opinions (e.g. unqualified opinion received by small auditees) have on the informative value according to the investing public. These three subperiods signify a major change in the financial reporting and auditing process not only through the Black Monday crash of 1987 but also, more importantly, through the regulatory change introduced with the SOX Act. It becomes obvious from the results that there seems to be an increasingly higher informative value of audit opinion over time. There is a noticeable change between pre-SOX and post-SOX. During 2003-2006, regulatory environment improvements protecting the investing public had a profound effect on market's perception of the auditing process. The results in Table VI demonstrate exactly this phenomenon.

Within the pre-SOX subperiods (1981-1987 and 1988-2002) certain findings are of note. The results regarding audit opinion types are rather vague, but adequate for obtaining a better understanding of these two subperiods. Unqualified opinion types have statistical significance, implying a positive relationship with returns. They present a specific trend demonstrating that especially before SOX, ((1987-2002), as shown in Equation (5)), unqualified types severely impacted market perception towards audit opinions. Furthermore, *UNQSZ* presents a strong positive and statistically significant relationship with returns, at least during 1988-2002, implying that small audittees, receiving an unqualified opinion, can significantly impact investor perception. A qualified opinion, on the other hand, presents statistical significance in certain cases; however, these findings are not very strong since they are not consistent throughout the model's estimation. For the periods constituting the pre-SOX era, despite the little take away from these estimations, it is clear that unqualified opinions play an important role in the market and positively impact the investing public. Finally, it must be noted that the *UNQEXP* dichotomous variable and the intercept variables produced by it, were dropped from the estimation for 1981-1987 because no data are available prior to 1988.

The results show that the reputation of audit opinion went unscathed for the subperiod following the SOX Act's implementation in 2002. This subperiod before the financial crisis presents statistically significant findings for the unqualified opinion types, thus implying their validation by the market and the attribution of informative value in the auditing process. One particular dichotomous variable, *AUDITOR*, stands out, as it seems to be negatively related to returns. This implies that the smaller the audit firm, the larger the returns for the company it audits. In other words, the investing public during this period appears to show some disbelief of the notion that a big auditing firm may provide a higher quality of auditing services and subsequently, empowers the concept that trust is with the "little guy".

Table VII presents a similar concept regarding how the market perceived audit opinion during and after the financial crisis. Again, the *AUDITOR* variable depicts a negative coefficient sign, and this inverse relationship with returns becomes positive only following the financial crisis (2010-2011). However, there are some interesting findings yet again for unqualified opinions. There seems to be a positive and statistically significant relationship with returns, and this trend remains consistent during the post-SOX period for these opinion types (*UNQOP* and *UNQEXP*) for Equations (2)-(5). Even during the financial crisis and thereafter, the market seems to have perceived unqualified opinions as highly important relating them with their investing decisions, and thereby validating the disclosed financial information.

Overall, the empirical analysis of the sample's subperiods do not allow us to reject *H1* or the second set of hypotheses, (*H2a*, *H2b* and *H2c*), demonstrating the consistency

Table VII.
Panel regression estimation using industry and year fixed effects for the analysis of market perception of audit opinion (subperiod analysis 2007-2011)

	2007-2009				2010-2011			
	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)
Intercept	−0.662***	0.172***	−0.583***	0.047	3.730***	0.582***	3.574***	0.437***
	(−6.534)	(5.018)	(−4.623)	(1.170)	(57.244)	(11.587)	(43.656)	(3.460)
EARN	0.451***	0.211	0.820***	0.592***	0.013	−0.162	0.129	−0.007
	(4.409)	(1.598)	(5.591)	(3.380)	(0.103)	(−1.087)	(0.818)	(−0.039)
Δ*EARN*	−0.283***	−0.205**	−0.452***	−0.358***	0.997***	1.054***	1.035***	1.083***
	(−3.750)	(−2.389)	(−4.664)	(−3.316)	(10.013)	(10.095)	(9.213)	(9.216)
UNQOP	0.489***	−0.062	0.390***	(omitted)	−3.127***	(omitted)	−3.062***	−0.019
	(4.802)	(−1.253)	(3.095)	–	(−49.929)	–	(−41.679)	(−0.110)
UNQEXP	0.601***	(omitted)	0.507***	0.050	−3.150***	−0.054	−3.062***	(omitted)
	(5.904)	–	(4.021)	(0.931)	(−42.752)	(−0.392)	(−37.598)	–
QOP	(omitted)	(omitted)	(omitted)	(omitted)	−2.776***	(omitted)	−2.733***	(omitted)
	–	–	–	–	(−51.384)	–	(−42.151)	–
AUDITOR		−0.867***		−0.134***		0.383***		(omitted)
		(−25.382)		(−5.054)		(7.924)		–
SIZE		(omitted)		(omitted)		(omitted)		0.065
		–		–		–		(0.636)
FD		−0.140***		−0.090***		−0.145***		−0.214***
		(−19.190)		(−2.635)		(−3.599)		(−4.505)
UNQA		0.715***		(omitted)		−0.336***		0.006
		(16.665)		–		(−13.348)		(0.139)
UNXPA		0.759***		0.054		−0.136		0.091
		(47.586)		(1.272)		(−1.119)		(0.711)
QOPA		(omitted)		(omitted)		(omitted)		(omitted)
		–		–		–		–
UNQSZ		−0.198***		−0.185***		0.050		0.148
		(−6.903)		(−5.926)		(1.319)		(1.364)
UNXPSZ		−0.156***		−0.134***		−0.090		(omitted)
		(−7.878)		(−6.306)		(−1.002)		–
QOPSZ		(omitted)		(omitted)		(omitted)		(omitted)

(*continued*)

Table VII.

	2007-2009				2010-2011			
	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (2)	Equation (3)	Equation (4)	Equation (5)
UNQFD		– 0.025 (0.977)		– (omitted)		– (omitted)		– (omitted)
UNXPFD		– 0.001 (0.024)		– −0.005 (−0.125)		– −0.012 (−0.130)		– −0.007 (−0.063)
QOPFD		(omitted) –		(omitted) –		(omitted) –		(omitted) –
GROWTH			0.013*** (5.342)	0.012*** (3.738)			0.013*** (3.469)	0.014*** (3.368)
LEV			−0.001** (−2.500)	−0.025*** (−19.662)			0.002** (2.266)	0.005* (1.810)
UNQG				0.001 (0.201)				(omitted) –
UNXPG				(omitted) –				−0.002 (−0.181)
QOPG				(omitted) –				(omitted) –
UNQL				0.024*** (21.184)				−0.001 (−0.485)
UNXPL				0.024*** (17.011)				(omitted) –
QOPL				(omitted) –				0.011* (1.748)
Adj. R^2	0.030	0.054	0.066	0.081	0.078	0.081	0.092	0.097
Akaike criterion	9,918.014	9,279.424	7,752.874	7,380.815	11,823.322	11,270.591	10,072.081	9,604.602
n	5,852	5,551	4,975	4,758	4,215	4,032	3,672	3,511

Notes: Dependent variable: Returns (*R*); values in the brackets represent the *t*-statistic value; coefficient values omitted are dropped from the estimation due to collinearity; the sample consists of 41,254 firm-year observations from the period of 1981-2011. All the data were available by Compustat and refer to firms listed in NYSE, AMEX and NASDAQ. *R*, *EARN*, *ΔEARN*, *GROWTH* and *LEV* have been winsorized for a fraction of ±1.5 per cent. For variable specification see Table AI. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

of this study's findings and highlighting the notion that audit opinions bear incremental information content, even over a period spanning 30 years.

6. Summary and conclusions

The deteriorating usefulness of financial information to investors (Lev and Zarowin, 1999), caused by the decline of financial reporting quality, has raised, questions about the validity of audit procedure on many occasions (Walker, 2013), while the evolution of financial reporting can challenge it even further in the future (Ismail and Sobhy, 2009). This paper provides empirical support for the incremental information content of audit opinion, thus supporting the reliability of the auditing process, which seems in most cases, to be irreplaceable in the minds of investors.

Our approach attempts to provide an in-depth analysis of a series of models by implementing a methodological rationale that has not been previously employed in the context of the audit opinion informational content. The analysis emphasises the examination of each audit opinion type in order to investigate which is perceived by the market as value relevant. Furthermore, this study verifies that a series of factors differentially impact the market perception of audit opinions and outlines the factor's interactions with audit opinion types. Moreover, to ensure robust findings, certain proxies are introduced. Their interactions with audit opinion types, aim to eradicate any potential effect on stock returns or audit opinion types. Finally, the constructed estimation models are devised for a series of subperiods by using important economic events as intersections.

The primary analysis shows that the market will attribute informative value to both unqualified and qualified opinion types connected with specific factors impacting audit opinions, such as auditor and auditee size or financial distress. Specifically, the market perceives as value relevant qualified audit opinions issued by big auditors to small and distressed auditeed firms, while unqualified opinions seem to present a market effect only when an audit opinion type is issued for a small auditee.

The interaction of control variables (growth and leverage) with audit opinion types as proxies provide equally interesting results verifying that audit opinions, both unqualified and qualified, generate a profound market effect. Unqualified opinion types by big auditing firms for small-sized and financially distressed auditees positively impact the market's perception. Similarly, as previously noted, a qualified opinion issued by big auditors for small auditees negatively affects the investing public, due to the seriousness of such an audit announcement. However, this does not seem to be the case with qualifications issued for financially distressed auditees. The positive market effect of this audit opinion type can perhaps be explained by the assumption that despite the firm's poor financial condition, it receives a qualified opinion. Thus it contradicts market's anticipation for a disclaimer or an adverse opinion, and acknowledges this qualification as an improvement.

The third part of the methodology analyses the market perception of auditor opinion over time. The findings demonstrate rather consistently that its importance remains unscathed by the passage of time. Despite the skepticism developed towards the auditing process (Paino *et al.*, 2012) and the subsequent criticism of the regulatory framework, the market seems to perceive unqualified opinions as valid, thereby attributing informational content to them. Such investors' behaviour seems to apply not only to the pre-SOX period but also post-SOX including, the financial crisis of 2007-2009 and thereafter.

This study, to the extent of our knowledge, is believed to be one of the first empirical analyses of audit opinion to employ a value relevance model. This contrasts with other market-based research adopting an event study methodology. It uses a 30-year US sample

to assess whether audit opinion types have a significant market effect and it examines the conditions under which each opinion has the most serious effect on investors. The research illustrates that both shareholders and potential investors use the information content of audit opinion for their investment decisions. The findings therefore suggest that investors rely on the validity of the audited, disclosed financial information.

This study also offers useful insights for auditors since it demonstrates the importance of the auditing profession to the users of financial statements. The information communicated through the auditing process represents comprehensive evidence, validating corporate disclosures (Tauringana and Chong, 2004), and ensuring the orderly operation of every financial environment. Furthermore, the value relevance of audit opinion and its resulting implied significance underlines the role of regulatory bodies and standard setters. The informative value of audit expression implies that regulators must establish with certainty that the framework both ensures and protects the proper implementation of the auditing process and allows them to track the efficiency of the various audit policy changes.

However, some research limitations exist in the analysis performed. Despite a rather large data set, an analysis regarding the disclaimer and adverse opinion was not possible. The small number of firm-year observations for these audit qualifications forced their omission. Nevertheless, this does not change the fact that the introduction of these variables and their interactions could add valuable attributes to this empirical research. The incorporation of these audit opinion types remains a topic for future research because the accumulation of additional years could allow for a higher number of observations, thus making their utilisation possible.

Notes

1. AU Section 339 "Audit Documentation", Section 23, para.482.
2. "The issuance date can change if events occur after the completion of fieldwork, but before the issuance of the report" (AU Section 530 "Dating of the Independent Auditor's Report", Section 01, p. 641).
3. In this context, "qualified" is used to describe only a qualified opinion. The reason for not considering the introduction of a disclaimer and adverse opinion in the model is that this sample consists of merely 19 firm-year observations for both of these opinion types, rendering them practically unusable.
4. Unqualified opinion with an explanatory paragraph type is available from Compustat after 1988.
5. These firm-year observations cannot be classified as unaudited because Compustat does not provide us with any type of auditing information about them, including whether they are unaudited.
6. The anonymous reviewer is acknowledged here for suggesting this methodological rationale.

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Appendix

Variable definition	Variable name	Variable measurement
Continuous variables		
Stock returns	*R*	Change in stock market price, plus the annual dividends for the present fiscal year divided by the beginning of the period stock price. The annual period for the estimation of returns is extending for a period of 9 months prior to the fiscal year end, and 3 months after that
Deflated earnings	*EARN*	Annual earnings per share divided by beginning of the period stock price
Deflated earnings changes	$\Delta EARN$	Change in annual earnings per share divided by the beginning of the period stock price
Dichotomous dummy variables		
Auditor's unqualified opinion	*UNQOP*	It states that the financial statements present fairly, in all material respects, the financial position, results of operations and cash flows of the entity in conformity with generally accepted accounting principles. The dichotomous variable created equals to 1 if Auditor's Report type falls in this category and 0 otherwise
Auditor's unqualified opinion with explanatory paragraph	*UNQEXP*	Certain circumstances, while not affecting the auditor's unqualified opinion on the financial statements, may require that the auditor add an explanatory paragraph (or other explanatory language) to the report. The dichotomous variable equals to 1 if Auditor's Report type falls in this category and 0 otherwise
Auditor's qualified opinion	*QOP*	A qualified opinion states that, except for the effects of the matter(s) to which the qualification relates, the financial statements present fairly, in all material respects, the financial position, results of operations and cash flows of the entity in conformity with generally accepted accounting principles. The dichotomous variable equals to 1 if Auditor's Report type falls in this category and 0 otherwise
Audit firm size	*AUDITOR*	Dichotomous variable, equal to 1 if auditing firm performing the audit belonged to either, Big 8, Big 6, Big 5 or Big 4 during the period 1981-2011, 0 otherwise
Auditee size	*SIZE*	Dichotomous variable, equal to 1 if the logarithm of market value of equity for each audited firm is smaller than the median logarithm of market value of equity (Small firm), 0 otherwise (Big firm)

(*continued*)

Table AI.
Variable definitions table

Variable definition	Variable name	Variable measurement
Financially distressed	*FD*	Dichotomous variable, equal to 1 if Altman's *Z*-Score for each audited firm is smaller than 1.81, (financially distressed firm), 0 otherwise (non-financially distressed firm)
Auditor's unqualified opinion issued by big auditing firms	*UNQA*	Intercept variable representing the product *UNQOP* × *AUDITOR*
Auditor's unqualified opinion with explanatory paragraph issued by big auditing firms	*UNXPA*	Intercept variable representing the product *UNQEXP* × *AUDITOR*
Auditor's qualified opinion issued by big auditing firms	*QOPA*	Intercept variable representing the product *QOP* × *AUDITOR*
Auditor's unqualified opinion received by small-sized auditees	*UNQSZ*	Intercept variable representing the product *UNQOP* × *SIZE*
Auditor's unqualified opinion with explanatory paragraph received by small-sized auditees	*UNXPSZ*	Intercept variable representing the product *UNQEXP* × *SIZE*
Auditor's qualified opinion received by small-sized auditees	*QOPSZ*	Intercept variable representing the product *QOP* × *SIZE*
Auditor's unqualified opinion received by financially distressed auditees	*UNQFD*	Intercept variable representing the product *UNQOP* × *FD*
Auditor's unqualified opinion with explanatory paragraph received by financially distressed auditees	*UNXPFD*	Intercept variable representing the product *UNQEXP* × *FD*
Auditor's qualified opinion received by financially distressed auditees	*QOPFD*	Intercept variable representing the product *QOP* × *FD*
Control variables		
Growth proxy	*GROWTH*	Firm's market value of equity for year *t* divided by firm's book value of equity for year *t*
Leverage proxy	*LEV*	Firm's long-term debt for year *t* divided by firm's total assets for year *t*
Growth and auditor's unqualified opinion cross-term proxy	*UNQG*	Slope variable representing the product *UNQOP* × *GROWTH*
Growth and auditor's unqualified opinion with explanatory paragraph cross-term proxy	*UNXPG*	Slope variable representing the product *UNQEXP* × *GROWTH*
Growth and auditor's qualified opinion cross-term proxy	*QOPG*	Slope variable representing the product *QOP* × *GROWTH*
Leverage and auditor's unqualified opinion cross-term proxy	*UNQL*	Slope variable representing the product *UNQOP* × *LEV*
Leverage and auditor's unqualified opinion with explanatory paragraph cross-term proxy	*UNXPL*	Slope variable representing the product *UNQEXP* × *LEV*
Leverage and auditor's qualified opinion cross-term proxy	*QOPL*	Slope variable representing the product *QOP* × *LEV*

Notes: All the data were available by Compustat North America and refer to firms listed in NYSE, AMEX and NASDAQ.*UNQEXP* variable was available after 1988

Table AI.

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