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MARKET REACTION TO MODIFIED AUDIT OPINIONS: A SYSTEMATIC LITERATURE REVIEW IN BOTH DEVELOPED AND DEVELOPING COUNTRIES

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ABSTRACT

The purpose of this paper is to review the empirical literature on value relevance of audit reports by providing current evidence on the market reaction to modified audit opinions (MAOs). This study is motivated by the argument that recent research has resolved the research designs problems raised by the pre-2010 studies that resulted in unmitigated and contradictory results. We adopt a systematic literature review based on the guidelines presented by Kitchenham et al. in 2009 to review papers published between 2010 and 2020. The main findings of our review show sufficient evidence that MAOs are indeed useful to investors in making decisions in developed countries, which is evidenced by the fact that the MAOs have a negative effect on the share prices of companies. In contrast, evidence from studies conducted in developing countries shows null market reaction to MAOs, with the exception of the Chinese market, which shows a significant reaction. The methodological limitations and alternative causes behind the null market reaction to MAOs of studies conducted in developing countries are discussed in this paper.

Keywords: Value relevance of audit reports, Modified audit opinions, Stock market reaction, Event study, Systematic literature review

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INTRODUCTION

Since the 1960s, financial reports have no longer been considered essential for monitoring purposes only, but rather an essential tool for economic decision-making. While agency theory has focused on the shareholder/manager relationship, the new theoretical perspective (agency theory revisited) has turned its attention rather to the investor/manager relationship in a situation of informational asymmetry. Consequently, an alternative or complementary hypothesis to the monitoring hypothesis of financial reporting is the informational hypothesis (Higson, 2003).

In this sense, the demand for an audit function is based on the belief that auditors provide information and signals useful to the investors' decision-making process by providing an opinion on the financial statements. Audit opinions are then likely to reduce the information asymmetry between the firm and its potential investors by giving credibility to financial information communicated (Dye, 1993; Titman & Trueman, 1986; Wallace, 2004).

The audit opinions may take the form of an unmodified audit opinions expressed on financial statements that have been prepared in all material respects in accordance with the applicable frameworks, or modified audit opinions issued for financial statements that are not prepared in a manner that is materially consistent with applicable frameworks. Qualified audit opinions, as reflection of the auditor's inability to give a clean audit opinion, are then considered as part of modified audit reports.

From a conceptual point of view, the assumption underlying the idea of the relevance of audit opinions to investors is that audit reports contain incremental information that may affect the estimation of the magnitude of future cash flows and/or the riskiness of future cash flows. In addition, the auditor may disclose in the report privileged and private information not previously disclosed (Mutchler, 1984). Thus, the audit report is considered to be a document with a strong impact on investment decisions (Ittonen, 2012). Based on this, the information contained in modified audit reports is considered a negative signal to investors about a company's financial situation and we can therefore expect a negative market reaction (Choi & Jeter, 1992).

In practice, the majority of academic research on this question concentrated on modified audit opinions especially qualified and going concern opinions to test the relevance of auditors' reports. This conceptual choice is justified by the more significant informational content of modified reports since it highlights minor or major impediments to the propensity of financial statements to fairly reflect the company's accounts or outright warn of the company's going concern presumption.

Moreover, published research has not consistently demonstrated whether investors react to modified audit opinions or not. For example, Chow and Rice (1982) and Dodd et al. (1984) found no significant stock price reaction to the issuance of MAOs while Loudder et al. (1992) report a negative stock price reaction to MAOs. Some studies also find no difference between unmodified audit report and other types of audit reports (Ogneva & Subramanyam, 2007; Banimahd et al., 2013). These mixed results make even some researchers call into question the usefulness of the document as clearly expressed by Mutchler (1985) when she notices, "if auditors' opinions merely reflect what can be gleaned from publicly disclosed information, then the opinion itself could be redundant."

One explanatory factor for these inconstancies is methodological imperfections. Indeed, Craswell (1985) reviewed pre-1980 studies of the information content of qualified audit reports and concluded that these studies' results support that qualified audit reports do not provide information content to investors, not because they lack information but simply because of shortcomings in the appropriate methodology. Craswell (1985) raised four major research design issues: (1) the exact determination of the event time, (2) the partitioning of observations, (3) the selection of sample observations and (4) confounding events.

More recently, Ittonen (2012) reviewed the archival literature on market reactions to qualified audit reports for the period 1972–2010 and expanded the methodological imperfections to the elements related to the audit report content: (1) the difficulty in determining the event date, (2) the effect of concurrent disclosures which cannot be separated and controlled, (3) the predictability of the audit report, (4) data availability, (5) frequency, recurrence and the type of qualified audit reports, and (6) the availability of related disclosures. So, the fact that the auditor incorporates "value-added information" to the accounting information provided by the firms is called into question.

Thus, the objective of this study is to reveal if post-2010 academic research led to more consistent results on the question of market reaction to MAOs and if not, to highlight a plausible explanation of results' ambiguity. More specifically, the assumption that we seek to verify is whether a country's stage of economic development and in particular the efficiency of its financial markets, plays a determining role in the existence or not of a stock market reaction to the publication of MARs.

The degree of financial markets' efficiency seems to be a determining factor in the existence or otherwise of a market reaction to the issuance of modified audit reports, since financial markets in developing countries are less sophisticated than those in developed countries because information is not provided on a continuous

basis and it is more common for information to be published in the financial report (Czernkowski et al., 2010).

More globally, emerging markets have higher levels of information asymmetry than mature markets because the information about company fundamentals is not readily available. The weak legal and regulatory framework in emerging markets, poor information sharing practices and deliberately withheld information tend to weaken financial contracts or settlements. Further, emerging markets tend to have different levels of asymmetry information depending on the financial disclosure requirements, timing and size effects (Colombage & Halabi, 2012). The institutional framework for dealing with these capital market imperfections are probably less effective, because of the small scale of firm and because the institutions for collecting, evaluating and disseminating information are likely to be less well developed (Stiglitz, 1989).

To do this, we opted for a systematic literature review, which is a methodology based on a defined search strategy that aims to detect as much of the relevant literature as possible (Kitchenham, 2004) concerning a specific research question. In fact, this methodology is particularly suited to research involving large databases and for which a significant exclusion process must be carried out in order to arrive at a fairly small and relevant number of observations from a large research field.

We chose to concentrate on articles published after 2010 in order to be in continuity with Ittonen (2012) literature review, which covered the period 1972 to 2010. However, unlike Ittonen (2012) who focused only on qualified audit reports, we were interested in all types of modified audit reports. Also, to our knowledge, our literature review is the first to explore the difference in research findings of studies on market reaction to audit reports between developed and developing countries.

RESEARCH METHOD

In order to identify papers dealing with the market's reaction to MAOs, we opted for a methodological process that combines electronic research and manual content analysis as part of the Systematic Literature Review (SLR) methodology. An SLR is a methodology that involves identifying, evaluating and interpreting all available research relevant to a particular research question. It has many applications, including the field of accounting and finance research, event study methodology has been applied to a variety of firm specific and economy wide events (Peterson, 1989; MacKinlay, 1997).

This section describes the three steps of the methodology used to perform the systematic review conducted in this study: Planning the review, conducting the review and reporting on the review, as proposed by Kitchenham (2004).

Planning the Review

The issue of audit reports relevance has been studied over a long period of time in numerous documents, from Libby (1979) and Houghton (1983) to recent studies. This stream of research has been based largely on the question of how investors or other stakeholders perceive the information contained in the audit opinion as affecting the reliability of the information in the financial statements and, above all, investors decision-making.

Two broad categories of studies address the issue of relevance of audit reports. "Empirical studies" which aim to determine the effect of modified audit reports publication on stock market prices and "experimental studies" who conduct experiments of the relevance of MARs based on the observation of the decision-making process of financial statement users (Holt & Moizer, 1990). We chose to address the empirical studies that were subject to the most criticism and methodological limitations, resulting in no consensus on the value relevance of the MARs.

Thus, we conduct a SLR of papers dealing with the market's reaction to MAOs using an event study methodology, to find out whether the stock market reacts to the issuance of modified audit reports and thus conclude on the relevance of audit reports.

As, the pre-2010 financial literature on the topic of market reaction to MAOs has provided sparse and mixed results due mainly to methodological imperfections (Craswell, 1985; Ittonen, 2012), we chose to focus on post-2010 research that normally should had solved main methodological limitations. We have also distinguished among the reviewed papers between those related to developed and developing countries. Finally, we did not focus our literature review on a single type of MAOs but on five types, as shown in Figure 1.

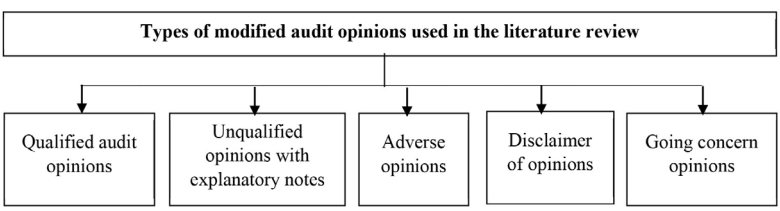

Figure 1: Types of modified audit opinions used in the literature review

Conducting the Review

The search process was carried out between the beginning of June and the end of August 2020 and was based on tthe Google Scholar search engine. The choice of this database is explained by studies' results comparing the most widespread databases in the field of business, accounting and management, such as Google Scholar (GS), Scopus and Web of Science (WoS) and which favours the choice of GS as a database offering more coverage and completeness (Mingers & Lipitakis, 2010; Halevi et al. (2017). Moreover, many studies conducted in developing countries are not indexed in controlled databases such as Scopus and WoS, which makes the GS database the most adaptable regarding our research aims.

The search process was carried out using five criteria to determine papers to be included. The set of those criteria are:

1. Articles published between 2010 and 2020 addressing the market's reaction to MAOs.
2. Articles published in different languages.
3. Works published in specialised journals and/or conferences proceedings.
4. Articles using the event study methodology.

The first step of our selection process is to identify a primary list of papers based on the following keywords: *"Market Reaction" or "Share Prices and Returns"* ***and*** *"Modified Audit Opinions" or "Qualified Audit Opinions" or "Going Concern Opinions" or "Unqualified opinions with explanatory notes" or "Adverse opinions" or "Disclaimer opinions".*

The second step is based on the exclusion of papers based on:

1. Level of relevance: GS's search results are sorted by relevance, so the last few pages of results contain off-topic papers with keywords that appear only a few times in the body of the text or in the references used by the researchers. Also, we have followed Haddaway et al. (2015) recommendation for researchers using GS to focus on the first 300 results to reduce the proportion of grey literature.
2. Paper type: We have only taken into account papers published in scientific journals or at conference proceedings. In this instance, we have excluded published theses and chapters in books (e.g., The thesis of Tanui (2010): "The effect of modified audit opinions on share prices for companies quoted at the Nairobi Stock Exchange" and the chapter 3: "Effects of

GCOs in Italy: Some Empirical Evidence" of the book "Audit Reporting for Going Concern Uncertainty" authored by Brunelli (2018).

3. Research question: We excluded papers based on titles that not clearly display the purpose and research question addressed (e.g., "How do various forms of auditor rotation affect audit quality? Evidence from China" by Firth et al. [2012]). In spite of this, several titles remain vague and do not show the overall purpose of the research, and therefore the reading of the abstracts allowed us to select or not an article.
4. Research design: We have chosen to treat only articles using the event study, which is the most widely methodology used to examine market reaction to MAOs. Thus, we excluded articles using literature reviews (e.g., "Market reactions to qualified audit reports: Research approaches" by Ittonen [2012]) or the experimental method (e.g., "Do investors perceive the going-concern opinion as useful for pricing stocks?" by O'Reilly (2010) or other empirical methods (eg., "The Information Value of Qualified and Adverse Audit Reports: Evidence from the Municipal Sector" by Edmonds et al. (2020)).

Of 1,832 references identified in the database based on keywords (step 1), only 116 papers were retained taking into account the four exclusions of step 2. After cancelling redundant papers, our final sample contains 44 papers (22 papers about developing countries and 22 about developed countries).

Table 1 shows the study selection process adopted in this paper.

Table 1
Study selection process

Selection process	Exclusions				No. of papers
	Level of relevance	Paper type	Research question	Research design	
Step 1: Selection based on Keywords Queries	-	-	-	-	1,832
Step 2: Exclusions	220	47	1 403	46	1,716
Retained papers after steps 1 and 2					116
Eliminating repeated articles					72
Remaining papers (Final Sample)					44

Reporting on the Review

The data extraction and synthesis step consisted of extracting the data to be used in the analysis step. Three types of data were extracted from remaining papers:

1. Study reference: Authors and year of publication.
2. Methodological elements adopted: Market observed, time period examined, number of MAOs observed, event window, use or not of control variables.
3. The result of the study: Main test and evidence or not of the existence of a market reaction to MAOs.

The verification and analysis of the content of the selected articles followed a logic based on several iterations, depending on the need for our analysis. On average, each article was rechecked more than three times; In case of anomaly, the modification of our results is immediately taken into account and synthesised in our main table. The data for each article was extracted manually and entered into Microsoft Excel, which allowed us to perform the descriptive analysis and drawing of the diagrams.

In order to perform an analysis based on the results from papers dealing with the market reaction to MAOs and a comparative analysis between results from developed and developing countries, this paper divides studies into two blocks as shown in Table 2. The first block concerns studies devoted to developed country markets and a second one to developing country markets.

This classification is based on the United Nations report "The World Economic Situation and Prospects 2020" which divides countries into two broad categories, based on their economic situation, namely developed and developing countries. This classification takes into account the economic status such as GDP, GNP, per capita income, industrialisation, etc.

Table 2
Studies on market reaction to modified audit opinions in developed and developing countries

Developed countries	Developing countries
Menon and Williams (2010) *	Pei et al. (2010)
Peixinho and Taffler (2011) *	Tahinakis et al. (2010)
Ittonen (2012) *	Czernkowski et al. (2010)
Hsu et al. (2011) *	Moradi et al. (2011)

(*Continued on next page*)

Table 2 (*Continued*)

Developed countries	Developing countries
Coelho et al. (2012) *	Tang and Du (2011)
Kaplan et al. (2014) *	Anvarkhatibi et al. (2012)
Chira (2014) *	Hakim et al. (2012)
Ianniello and Galloppo (2015) *	Pei and Hamill (2013) *
Dong et al. (2015) *	Ghorbel and Omri (2013) *
Harris et al. (2015) *	Chen et al. (2014) *
Martinez-Blasco et al. (2016) *	Anulasiri et al. (2015)
Bar-Hava and Katz (2016) *	Salim (2016)
Khan et al. (2017) *	Mustikarini and Samudera (2017)
Myers et al. (2018) *	Silva et al. (2017)
Geiger and Kumas (2018) *	Prasetyo (2017)
Grosse and Scott (2018) *	Castañeda and Montoya (2018)
Carlino et al. (2018) *	Danescu and Spatacean (2018)
Bédard et al. (2019) *	Pakdaman (2018) *
Czerney et al. (2019)	Acar and Temiz (2019)
Ruiz-Barbadillo and Guiral (2019) *	Goh et al. (2019) *
Geiger et al. (2020) *	Chen et al. (2020) *
Kelten and Saritas (2020) *	Sağim and Reis (2020)
96% support significant market reaction	**27%** support significant market reaction
4% do not support significant market reaction	**73%** do not support significant market reaction

Notes: *Denotes papers that have found a significant and negative market reaction to the issuance of MAOs.

RESULTS

Table 3 summarises the main results of papers published between 2010 and 2020 dealing with the market's reaction to MAOs using an event study methodology by demonstrating the methodological elements adopted. These vary from one study to another, due to data availability and market efficiency.

The studies that were analysed are listed in chronological order starting with the studies conducted in developed countries followed by those conducted in developing countries in order to demonstrate a comparative analysis between these two categories of countries in terms of the methodological elements adopted and the results found.

Table 3
Studies on Market Reaction (MR) to modified audit opinions (2010–2020)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Developed countries								
Menon and Williams (2010)	The Accounting Review (*H-Index: 168*)	U.S.	1995–2006	1,194	(–5, +5) days	Yes	Investor reaction to going concern audit reports.	Yes
Peixinho and Taffler (2011)	University of Evora, CEFAGE-UE (*H-Index: Not defined*)	U.S.	1994–2005	924	(–1, +1) days	Yes	The role of security analysts in the short-term market reaction to the publication of a going-concern modified audit report.	Yes
Ittonen (2011)	Accounting Research Journal (*H-Index: 19*)	U.S.	2002–2008	237	(0, +1); (–1, +1) days	Yes	Stock market reactions to going concern audit reports.	Yes
Hsu et al. (2011)	Journal of International Financial Management & Accounting (*H-Index: 40*)	Taiwan	1999–2007	106	(–20, +20) days	No	Price behaviour of companies with qualified opinions around the audit report and report announcement days.	Yes
Coelho et al. (2012)	Lisbon School of Economics and Management (*H-Index: Not defined*)	Portugal	1994–2005	670	(–5, +5) days	Yes	The effect of going concern audit opinions on stock price performance of the announcing firms and their industry rivals.	Yes
Kaplan et al. (2014)	Arizona State University (H-*Index: Not defined*)	U.S.	2001–2011	800	(–1, +1) days	Yes	The incremental market reaction to first time going concern audit reports relative to similarly distressed non-going concern audit report firms.	Yes
Chira (2014)	Applied Financial Economics (*H-Index: 57*)	U.S.	2000–2010	871	(–1, +1) days	Yes	Market reaction to negative reports published by analysts and auditors during the 2008 financial crisis.	Yes

(*Continued on next page*)

Table 3 (*Continued*)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Ianniello and Galloppo (2015)	Managerial Auditing Journal (*H-Index: 61*)	Italy	2007–2010	97	6 event windows	Yes	Investor reactions to auditor opinions containing qualifications or an emphasis of matter paragraph related to going concern uncertainty or financial distress.	Yes
Harris et al. (2015)	Corporate Governance & Accounting eJournal (*H-Index: Not defined*)	U.S.	2004–2013	25,092	(–1, +1) days	Yes	The market reaction to the announcement of consecutive going concern opinions beyond the initial going concern and the level of institutional investor ownership.	Yes
Dong et al. (2015)	Advances in Accounting (*H-Index: 34*)	U.S.	2000–2012	581	(–1, +1) days	Yes	The market's response to earnings surprises after first-time going-concern modifications.	Yes
Martinez-Blasco et al. (2016)	Revista de Contabilidad (*H-Index: 20*)	Spain	2002–2010	79	(–5, +5) days	Yes	The impact of the publication of qualified audit reports on the share price and trading volume following an audit legislative change.	Yes
Bar-Hava and Katz (2016)	The Hebrew University of Jerusalem (*H-Index: Not defined*)	Israel	2007–2013	143	(–22, +5) days	Yes	Stock and bondholders reaction to early disclosures of uncertainties about an entity's ability to continue as a going concern.	Yes
Khan et al. (2017)	Accounting and Business Research (*H-Index: 59*)	U.S.	2006–2010	81	(–3, +1) days	Yes	The market reaction to the public announcement of going concern opinions through the news media.	Yes
Myers et al. (2018)	Review of Accounting Studies (*H-Index: 79*)	U.S.	2002–2013	852	(0, +2) days	Yes	The market reaction to going concern modifications in a contemporary disclosure regime.	Yes

(*Continued on next page*)

Table 3 (*Continued*)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Geiger and Kumas (2018)	International Journal of Auditing (*H-Index: 25*)	U.S.	2002–2010	420	(–9, +6) months	Yes	Reaction of institutional investors to a first-time going concern modified opinion.	Yes
Grosse and Scott (2018)	Social Science Research Network (*H-Index: Not defined*)	Australia	2007–2014	4,062	(–1, +1) days	Yes	Market reaction to the issuance of interim going concern conclusions (half-yearly).	Yes
Carlino et al. (2018)	Journal of Modern Accounting and Auditing (*H-Index: 2*)	Italy	2008–2016	292	(–30, 20) days	Yes	Stock market reaction to yearly earnings announcements releases for firms in financial distress (going concern opinion).	Yes
Bédard et al. (2019)	Auditing: A Journal of Practice & Theory (*H-Index: 85*)	Canada	2005–2014	3,145	(0, +2) days	Yes	Investor reaction to going concern information.	Yes
Czerney et al. (2019)	Contemporary Accounting Research (*H-Index: 109*)	U.S.	2000–2014	37,147	(–1, +1) days; (–201, + 201) days	Yes	Investors response to explanatory language included in unqualified audit reports.	No Yes
Ruiz-Barbadillo and Guiral (2019)	Investment Management & Financial Innovations (*H-Index: 20*)	U.S.	2000–2006	30,311	-	Yes	The differential impact of expected and unexpected going concern opinions on the market value.	Yes
Geiger et al. (2020)	International Journal of Auditing (*H-Index: 25*)	U.S.	2002–2010	335	(–1, +1) days	No	Trading behaviour of mutual and pension funds around first-time, going concern modified opinions.	Yes
Kelten and Saritas (2020)	Journal of Economics and Administrative Sciences (*H-Index: 16*)	Germany and Turkey	2014–2018	126	(–10, +10) days	No	The audit report effects on stock markets and investors' decisions.	Yes

(*Continued on next page*)

Table 3 (*Continued*)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Developing countries								
Tahinakis et al. (2010)	Enterprise Risk Management *(H-Index: Not defined)*	Greece	2005–2007	16	(–5, +5) days	No	Impact of audit qualifications on firms' stock exchange price fluctuations.	No
Pei et al. (2010)	Journal of International Accounting, Auditing and Taxation (*H-Index: 43*)	China	1994–2000	229	(–1, +1) days	Yes	An analysis of quasi-qualification, modified auditor opinions and special treatment status.	No
Czernkowski et al. (2010)	Managerial Auditing Journal (*H-Index: 61*)	China	1999–2003	386	(–1, +1) days	Yes	The market reaction to modified audit opinions.	No
Tang and Du (2011)	Social Science Research Network (*H-Index: Not defined*)	China	2005–2009	123	(–1, +1) days	Yes	The determinants of outside directors' saying 'no' and what happens after they say 'no' at board meetings.	Yes
Moradi et al. (2011)	African Journal of Business Management (*H-Index: Not defined*)	Iran	2005–2009	103	(–5, +5) days	No	Correlation between qualified audit report and share prices and returns.	No
Anvarkhatibi et al. (2012)	Research Journal of Management Sciences (*H-Index: Not defined*)	Iran	2002–2008	492	Short- and long-term periods	No	The effect of auditor's opinions on shares prices and returns.	No
Hakim et al. (2012)	International Journal of Business Continuity and Risk Management (*H-Index: 4*)	Tunisia	2003–2006	41	(–15, +15) days	No	Investor reaction to the information content of audit report for Tunisian companies.	No

(*Continued on next page*)

Table 3 (*Continued*)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Pei and Hamill (2013)	Journal of International Accounting, Auditing and Taxation (*H-Index: 43*)	China	1998–2005	616	(–21, +21) days	Yes	Market reaction to modified audit opinions and unqualified opinions with explanatory notes.	Yes
Ghorbel and Omri (2013)	International Journal of Economics and Accounting (*H-Index: Not defined*)	Tunisia	2002-2006	42	(–2, +2) days	Yes	The effect of modified audit opinions on the emerging Tunisian Stock Market.	Yes
Chen et al. (2014)	China Journal of Accounting Research (*H-Index: 18*)	China	1997–2000	2,326	3 event windows	Yes	The effect of interim auditing on inter-investor divergence using variability of stock returns and trading volume.	Yes
Anulasiri et al. (2015)	International Conference on Business Management (*H-Index: Not defined*)	Sri Lanka	2010–2014	26	(–4, +4) days	No	The effect of qualified auditors' report on share prices and returns.	No
Salim (2016)	Social Science Research Network (*H-Index: Not defined*)	Tunisia	2010–2012	-	(–10, +10) days	No	The effect of qualified auditors' opinions on share prices.	No
Mustikarini and Samudera (2017)	Asian Academic Accounting Association (*H-Index: Not defined*)	Indonesia	2010–2015	56	5 event windows	Yes	The effect of investors' reaction towards the issuance of modified audit opinion.	No
Silva et al. (2017)	Rio de Janeiro Federal University (*H-Index: Not defined*)	Brazil	2011–2016	6	(–1, +1) days	No	Market reaction to the going-concern modified audit opinions of public companies after the IFRS adoption.	No

(*Continued on next page*)

Table 3 (*Continued*)

Authors / year	Reference*	Obs. market	Time period examined	No. of obs.	Event window	Control variables	Main test	Evidence of MR
Prasetyo (2017)	Magazine Wise Scientific (*H-Index: Not defined*)	Indonesia	2012–2013	53	(–10, +10) days	No	The response of investors to the going concern opinion.	No
Danescu and Spatacean (2018)	The Audit Financiar Journal (*H-Index: Not defined*)	Romania	2009–2017	41	(–5, +5) days	No	The impact of auditor qualified report on the movement of stock prices.	No
Castañeda and Montoya (2018)	Cuadernos de Contabilidad (*H-Index: Not defined*)	Colombia	2009–2016	127	3 event windows	Yes	The impact of the auditor's report on stock market.	No
Pakdaman (2018)	Revista Publicando (*H-Index: Not defined*)	Iran	2011–2015	269	3 event windows	No	The influence of auditor's opinion (modified) on stock market reaction.	No
Acar and Temiz (2019)	Muhasebe ve Denetime Bakış (*H-Index: Not defined*)	Turkey	2005–2017	22	(–10, +10) days	No	The impact of auditor's opinions on the decision-making processes of investors and their informational value.	No
Goh et al. (2019)	Research collection school of accountancy (*H-Index: Not defined*)	China	2014–2018	7,325	(–1 +1) days	Yes	Informativeness of modified audit opinions.	Yes
Sağim and Reis (2020)	İktisadi ve İdari Bilimler Dergisi (*H-Index: Not defined*)	Turkey	2009–2018	612	(–10, +10) days	No	The change in the stock returns in the days surrounding the announcement of the independent audit opinions and the days around.	No
Chen et al. (2020)	European Accounting Review (*H-Index: 80*)	China	1995–2011	2,181	(0, +2) days; +12 months	Yes	Stock returns for modified audit opinions recipients surrounding the announcements of modified audit opinions.	Yes; Yes

Notes: Reference*: The source of the H-index of publications is: https://www.scimagojr.com/; ; MR = market reaction.

Market Reaction to Modified Audit Opinions in Developed Markets

The summary of results of studies conducted in developed countries affirmed a significant market reaction to the release of audit reports containing MAOs, representing 96% of all studies. Only the study of Czerney et al. (2019) that found no reaction when using a short event window (–1, +1) days but when using a long event window, investors reacted significantly to the issuance of explanatory language included in unqualified audit reports. This evidence puts an end to the syntheses of results from previous studies that provide mixed and contradictory results and call for methodological problems related to event studies in this topic.

On what date the modified audit report reaches potential investors? Specifically, on what date the stock market is expected to react to the release of a modified audit reports? The answer to this question is the first step in the development of an event study. This date must be accurately determined so that the empirical analysis can properly capture the effect that the issuance of a MAO may have on stock prices. A precise event date also makes it possible to determine the length of the different windows on the timeline of the event (estimation and event windows).

Ittonen (2012), studying the archival literature on market reactions to qualified audit reports published prior to the year 2010, lists several event dates selected by researchers, who sometimes use several event dates, namely: auditor issues/client receives the audit report; earnings announcement date; SEC filing date of annual report/10-K report; earliest of conceivable disclosure dates; media coverage; annual general meeting; and filing of related event. This evidence clearly shows the difficulty of determining the event date, which is assumed to be the date of the actual arrival of the information on the stock market and on which the first day of trading on the information contained in the audit report occurs (Ittonen, 2012).

The post-2010 research on market reactions to MARs overcame the methodological limitations presented in previous publications, where the lack of databases specialised in the analysis of audit data made it very difficult to determine the exact event date.

The results of our review show that researchers now use the date of publication of audit reports on the stock exchange's website or on specialised databases (Audit Analytics; Thompson Reuters Knowledge; Market Observation Post System (MOPS); SIRCA; SEDAR; etc.). The advantage of these databases

is that they constitute a meeting market between the actors in need of information and those holding the information, thus providing an exchange of information in exact time allowing for a rapid reaction to the information needed in the decision-making process.

Table 4 presents all the event dates used and shows that all studies that opted for the date of publication of the audit report in specialised databases found a significant market reaction to the issuance of MARs.

While this result shows that a certain consensus has been reached among researchers as to the date to be examined in order to bring evidence on a potential market reaction to the release of MARs, it should however be examined with caution as a majority of these research are related to the U.S. market (13 out of 22).

Three studies found a significant market reaction to the release of MARs using the earnings announcement date as the event date. This choice of the event date is justified by the purpose of their studies. Indeed, the purpose of the paper of Carlino et al. (2018) is to feed the debate regarding investor's reaction to relevant financial information releases as yearly earnings announcements. Grosse and Scott (2018) investigate whether going concern conclusions in the interim (half-yearly) review provide investors with a timely source of useful information, and finally Ruiz-Barbadillo and Guiral (2019) examine the differential impact of expected and unexpected going concern opinions on the market value.

Table 4
Timeline illustration of different event dates used by researchers in developed countries

Event dates	Reference
Date of signature of the audit report	Ittonen (2012) * Ianniello and Galloppo (2015) *
Earnings announcement date	Carlino et al. (2018) * Grosse and Scott (2018) * Ruiz-Barbadillo and Guiral (2019) *
Filing date of annual report/10-K report	Ittonen (2012) * Kaplan et al. (2014) * Harris et al. (2015) * Dong et al. (2015) * Khan et al. (2017) * Czerney et al. (2019)

(*Continued on next page*)

Table 4 (*Continued*)

Event dates	Reference
Audit reports/Going concern modifications disclosure date	Menon and Williams (2010) * Peixinho and Taffler (2011) * Hsu et al. (2011) * Coelho et al. (2012) * Chira (2014) * Harris et al. (2015) * Martinez-Blasco et al. (2016) * Bar-Hava and Katz (2016) * Myers et al. (2018) * Geiger and Kumas (2018) * Bédard et al. (2019) * Geiger et al. (2020) * Kelten and Saritas (2020) *

Note:* Denotes papers that have found a significant and negative market reaction to the issuance of MAOs.

In arriving to a better identification of the event date, all researchers in developed countries have opted for a short event period, thus making it possible to study the instantaneous reaction of the market on the basis of the efficient market hypothesis, which implies that the disclosure of a MAO to the public will be immediately incorporated into stock market prices. The market is said to be a semi strong form when the stock prices fully reflect all publicly available information including the information contained in the MAR (Fama et al., 1969).

Although some developed stock markets are less efficient than others, all of these markets are efficient in the semi-strong form, which involves providing consistent results on the market's reaction to the issuance of MAOs using short event periods (for example, from –1 to +1 day). The use of a short event period is sufficient to study the market's reaction around the publication date of the audit report. The efficiency degree of stock markets is therefore a reason for the consistency of the results found in the literature of developed countries and thus makes it possible to define a short period of event that eliminates the effect of simultaneous information and disclosure surprise.

The different types of MARs (e.g., unqualified opinions with explanatory notes; qualified opinions, disclaimers, adverse opinions) (Chen et al., 2020) have greatly increased over the last decade due to regulatory changes (Public Company Accounting Oversight Board [PCAOB] requirements) and the economic downturn that have led to the issuance of more MARs. In addition to the use of a largely sufficient sample, data on daily stock prices over the years are widely accessible via financial databases (Compustat, Ancerno, etc.).

Another factor that plays a very important role in the consistency of the results from research conducted in developed markets is the use of control variables that could explain the reaction of investors to information disclosed at the same time as the announcement of the modified audit report. Indeed, 21 out of 22 (96%) studies conducted in developed markets used control variables such as earnings surprise, concurrent bad news disclosure, audit report delay, leverage, the presence of loss, signature of the report by a BIG 4, firm size and others. More than 95% of studies conducted in developed markets using control variables found a significant market reaction to modified audit reports.

Market Reaction to Modified Audit Opinions in Developing Markets

Extending our study to developing countries, we find that 73% of studies have not found a significant market reaction to MAOs. The results also show that research conducted in the Chinese market provides results in the same way as in developed markets, i.e., the value relevance of the audit report and the significant market's reaction to MAOs. Indeed, five out of seven studies conducted in China found a significant market reaction.

For developing countries, the majority of researchers used the audit reports/going concern modifications disclosure date in the stock exchange website as event date. However, Anulasiri et al. (2015) states that the date used is often misdetermined due to the existence of an interval between the date of sending the audit reports to the stock exchange for publication and the effective announcement date. This problem is also compounded by the unavailability of specialised databases that can accurately define this date.

We also noted that, despite a growing number of studies using the audit reports/going concern modifications disclosure date as event date, as shown in Table 5, methodological limitations still persist and do not allow a consensus to be reached.

Table 5
Timeline illustration of different event dates used by researchers in developing countries

Event dates	Reference
20th day prior to annual general meeting	Tahinakis et al. (2010)
Notice date of annual general meeting	Danescu and Spatacean (2018)
Date of annual general meeting	Anvarkhatibi et al. (2012)
Filing date of annual report/10-K report	Chen et al. (2020) *

(*Continued on next page*)

Table 5 (*Continued*)

Event dates	Reference
Audit reports/ Going concern modifications disclosure date	Pei et al. (2010) Czernkowski et al. (2010) Moradi et al. (2011) Tang and Du (2011) Hakim et al. (2012) Pei and Hamill (2013) * Ghorbel and Omri (2013) * Anulasiri et al. (2015) Salim (2016) Mustikarini and Samudera (2017) Prasetyo (2017) Castañeda and Montoya (2018) Acar and Temiz (2019) Goh et al. (2019) * Sağim and Reis (2020)
Date of signature of the audit report	Pakdaman (2018) *
Semi-annual earnings announcement date	Chen et al. (2014) *
The date of the registering of the Financial Statements at Security and Exchange Commission	Silva et al. (2017)

Note: * Denotes papers that have found a significant and negative market reaction to the issuance of MAOs.

Anvarkhatibi et al. (2012) and Hakim et al. (2012) have chosen as event date, the date of the ordinary general meeting, despite the fact that current local legislation stipulates that the audit report has to be submitted to the shareholders 15 days before that date, simply to ensure that by that date, it is deemed that all audit reports are available to the shareholders.

In this respect, we consider that the choice of the date of the ordinary general meeting as the event date does not correspond to the foundations of the methodology of event studies in our case. Indeed, at that date, the audit opinion is already known, and the stock prices are assumed to vary based on the efficient market hypothesis. Also, at this date, several other simultaneous pieces of information are announced, which prevents the isolation of the reaction to the information in the audit report.

It is reasonable to assume that developing and emerging markets are less efficient than developed ones, which call into question the rapid and instantaneous incorporation of the information provided by the audit report into share prices, and therefore we can expect either null or delayed reaction. If this is the case, the use of a long period of events will allow a better understanding of the market's reaction.

The inconsistent findings in developing markets may be due to the determination of an event window that is not long enough to investigate market reactions around the announcement date on stock markets. For example, Czernkowski et al. (2010) and Silva et al. (2017) did not find a significant reaction using an event window of three days (–1, +1). Similarly, Anulasiri et al. (2015) and Moradi et al. (2011) used an event period of 9 and 11 days, respectively, i.e. (–4, +4) and (–5, +5) and found a null reaction to the issuance of the MAR.

However, studies conducted in the Chinese market found different results confirming a significant market reaction to MAOs. The robustness for a longer window, such as 30 or 40 days around the announcement date, has been evidenced by a number of studies conducted in the Chinese market (Pei & Hamill, 2013; Chen et al., 2014; Chen et al., 2020).

Pei and Hamill (2013) examined the market reaction to different types of MAOs. To do that, the researchers used 43 days (–21 to +21) event window in order to take into consideration investors' late reaction to stock market information and found a significant market reaction to MAOs. On the other hand, Chen et al. (2020) studied the market responds to auditors' opinions. They used an event period of 12 months after the announcement of the MAR and found a strong negative market reaction to MAOs.

It should also be noted that a possible explanation for the insignificant market reaction to the issuance of the MAR in developing countries might be based on the structure, market capitalisation and efficiency of capital markets, which may be unable to provide more relevant information to investors than they can obtain from other sources of information.

One of the major factors of the null reaction found in the results of studies conducted in developing countries is related to the unavailability of certain daily stock market prices because of the absence of transactions over a given period (Soltani, 2000). The absence of a few daily transactions makes it impossible to apply the event study methodology.

Chen et al. (2014) chose the years 1997–2000 as the sampling period because many observations had missing values prior to 1997. In addition, the study excluded 482 observations for the same reason. For their part, Chen et al. (2020) excluded 788 observations because of missing data from financial statements or stock markets.

From another point of view, auditors are less likely to issue MARs, since the researchers had to study a long period to arrive at a sample that would guarantee the exercise of the statistical tests. As observed by Mo et al. (2015), auditors are reluctant to issue going concern opinions because of client pressure due to the costs of a Type I error.

It should also be noted that, with the exception of the studies conducted in China, all of the studies conducted in developing countries used only three types of MAOs provided for under current legislation, namely, qualified, disclaimer, and adverse opinions, which limits the robustness of the sample used.

With the exception of studies conducted in the Chinese financial market, only three studies among 15 (20%) used control variables in developing markets, such as the financial leverage, firm size, profit and loss, book to market ratio, change in company's top executives, return on equity and repetition of opinion received (Mustikarini & Samudera, 2017; Castañeda & Montoya, 2018). Furthermore, what justifies the importance of using control variables to obtain fair and unbiased results is that all studies that found a significant reaction used control variables.

Finally, it should be noted that the reference of publications and explored markets are more diversified in the case of developing countries than developed ones, which minimises the risk of publication bias.

DIRECTIONS FOR FUTURE RESEARCH

Based on the findings of the study, 96% of the studies conducted in developed countries found a significant market reaction to the release of modified audit reports, while only 27% of the studies conducted in developing countries found a significant reaction (5 out of 6 studies that found a significant reaction in developing countries were conducted in China). Therefore, the researchers recommend testing the market reaction to the MARs in other untested developing markets, in order to better understand the methodological limitations encountered, and to compare the results of the reaction of different markets worldwide.

This section provides suggestions on how to conduct such studies in developing countries and concludes by discussion future extension of this research paper.

Event Date

Following the model of developed countries, developing countries must develop specialised databases for audit information, which guarantee the accuracy of the publication date of the audit report. In addition, these databases or local stock exchange websites must be interactive, ensuring the instantaneous dissemination of audit reports communicated by companies immediately between the date of receipt of audit reports and their publication.

The separation of the audit report from related information (financial statements, annual report, management communication, etc.) is considered essential in order to isolate the unique effect of the audit report (Herbohn et al., 2007).

Event Period

Constrained by the degree of efficiency of stock markets, research studying the reaction in developing markets should allow for a sufficient event period, taking into account the period between the preparation of the audit report and its publication in the appropriate information channels.

A long event period, however, is subject to certain challenges that need to be taken into account. Indeed, a long event period may contain certain related information that may affect the variation of stock prices. To define the optimal event period, it is suggested to conduct a national study on stock market efficiency.

Sample and Data

In order to ensure the robustness of the data to be tested, a representative sample should be used, ensuring normality of distribution. In this regard, researchers should use a study period that allows for the collection of a sufficient number of MARs. Similarly, researchers should make more effort to collect missing data. In addition, certain types of MARs do not yet exist in some developing countries, namely, the going concern report and the report on the effectiveness of internal controls. In the same vein, it is suggested to extend the analysis to the unmodified audit report.

Control Variables

The results of studies on the value relevance of audit reports in both developed and developing markets indicate the importance of using control variables in the

regression model to control for: (1) the effects of simultaneous disclosures that may affect stock prices and (2) investors' prior expectations of a modified audit opinion.

The choice of control variables to be used may vary from one financial market to another depending on the regulatory and organisational specifics of the market. They may concern for example: Unexpected Earnings (ΔEarnings per share, ΔReturn on equity, etc.); Concurrent Bad News (Merger or take-over by other companies, cash dividend reductions, litigation against the company, change of controlling shareholders, legal contingency, etc.); Report Delay; Financial Health (ΔLeverage, Loss contingency, company size, etc.) or other.

Test Variable

In addition, it should be noted that most of the studies included in this literature review have investigated the market reaction to the release of MARs through stock return variability. A use of trading volumes variability seems to be another essential way to capture this relationship. Chen et al. (2014) argue that, the use of trading volume as a measure for capturing market reaction, is also supported by a number of studies.

Hypothesis Development

A promising avenue for the future might be an extension of this literature review to study the market reaction to recent audit regulatory changes, such as critical audit matters, otherwise known as key audit matters. Also, it would be interesting to study the relationship between different events leading to MAOs (economic and financial crises, accounting standards changes, tax or other regulatory controls, etc.) and the existence or not of a market reaction.

CONCLUSION

Since the 1960s, research on the value relevance of audit reports has undergone a remarkable evolution and is one of the most sought-after topics in auditing.

The above review of empirical research on modified audit reports indicates that the findings support the hypothesis of the value relevance of audit reports in developed countries, contrary to results from literature reviews by Craswell (1985) and Ittonen (2012). Indeed, evidence from post-2010 empirical research findings on the market reaction to MAOs confirms that researchers have overcome methodological limitations previously encountered and have indicated that MARs

contain relevant information and are necessary in the decision-making process of investors.

Several recent developments explain these results. The event date is determined based on the date mentioned in databases specialising in audit information, which allows the exact identification of the date on which the MAR reaches the investors. The exact definition of the event date also makes it possible to define a short event period that prevents simultaneous disclosures or confounding information releases, based on the assumption of stock market efficiency.

For developing countries, except for Chinese market, the results are contradictory and mixed. Indeed, beyond the methodological limitations encountered by researchers in developing countries, which are due in a large part to the non-existence of databases of audit information allowing an exact definition of the event date and consequently an exact definition of event period, we note also that the mixed results could be explained by some specific characteristics of developing markets (degree of efficiency, regulatory framework of external corporate communication, awareness of the importance of companies compliance with accounting standards, etc.) leading to a lower degree of relevance of auditors opinions.

Another limitation in developing countries is the publication of the audit report with simultaneous information, such as the financial report, the annual report, the convocation to the ordinary general meeting, etc. Similarly, we found that studies in developing countries use a very small sample of modified observations, because auditors are less likely to issue MARs and the existence of several missing data.

Based on the findings of the study, the researchers recommend testing the market reaction to the MARs in other untested developing markets taking into account the following suggestions:

1. Identification of an event date which is in line with the practices and characteristics of the local stock exchange, and which corresponds perfectly to the date of receipt of the MARs by investors.
2. The use of a larger sample size necessary for statistical testing.
3. The use of control variables.
4. The event period should take into account the efficiency of the local stock exchange.
5. The use of trading volume as a measure for capturing market reaction.

Beyond the methodological limitations and their close link with the market efficiency (inadequate regulation, lack of companies' compliance or financial analysts' reactivity, etc.), the mixed results noted in developing countries raises the issue of the lack of relevance of the auditor opinion regarding the reliability of the accounts as expressed by its inability to induce a market reaction.

This finding contrast with the fact that there is a broader consensus of research in developed countries attesting a positive relationship between modified audit reports and market reactions, thus suggesting a growing utility of the audit report for investors increasingly considered by researchers as an output indicator for the quality of audit reports (El Badlaoui et al., 2021).

Therefore, it is recommended that investors and financial analysts in developing markets take more account of the auditor's opinion in their analyses because it contains information valuable for investors decisions as it has been demonstrated in developed markets.

Similarly, financial market regulators in developing countries should improve their regulatory framework for financial reporting and actively contribute to stock market education since the financing systems of most of developing countries are historically bank-oriented.

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