

Output Indicators of Audit Quality: A Framework Based on Literature Review

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Abstract The purpose of this paper is to review the research literature dealing with output indicators that indicate the level of audit quality: Auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap. This paper reviews a total of 89 papers authored post-2012, which relates to output indicators of audit quality, using a Systematic Literature Review. For each study, we demonstrated the methodology used (Archival/ Experimental), the sample chosen and the main results. Based on our findings, studies on the audit report state that it should contain more information and detail. For bankruptcy, researchers find that going concern opinion is an essential element in predicting bankruptcy, and that the auditor becomes more conservative after a bankruptcy. Through experimental studies on client-satisfaction studies, researchers have ruled on the elements that can satisfy clients on the audit work. The research on auditor litigation state that auditors being sued provide higher audit quality because they have more wealth at risk in case of litigation. The common cause of audit expectation-gap is the misperception of the auditors' responsibility to detect and prevent fraud. We contribute to the literature in the following aspects. First, we propose an audit quality framework that includes all the factors indicating the level of the external audit's quality (Auditor-related indicators; Audit-process indicators; Output indicators). Second, we present a review on the output indicators of audit quality (auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap). Thirdly, we draw on the results of

previous literature and provide suggestions for future research.

Keywords Audit Quality, Auditor's Report, Bankruptcy, Client Satisfaction, Auditor Litigation, Audit Expectation-Gap

1. Introduction

By virtue of its functions, audit is qualified as a governance mechanism; its role lies in improving the financial communication of organizations, ensuring good external governance and improving the confidence of third parties in the organization. Its power and importance in decision-making arouse the interest of right holders (citizens, employees, shareholders, etc.) who need to be assured of its quality.

However, measuring this quality is not an easy task, because the audit engagement process varies from one engagement to another depending on its context, especially since the content and focus of the audit report are so standardized that they offer little opportunity for differentiation. In this sense, it is only in the event of a bankruptcy or financial scandal (Xerox, 2000; Enron, 2001 and WorldCom, 2002) that we can focus on the failure of the audit mission.

To this end, the researchers began to discuss the audit quality, and more specifically, indicators for measuring it.

Several initiatives of measurement of the audit quality have been conducted by regulatory bodies of the audit profession [1, 2, 3] and researchers [4, 5, 6], whose objective is to determine the most effective way to assess and determine audit quality.

In 2014, the International Auditing and Assurance Standards Board (IAASB) has developed an audit quality framework comprising five key elements: Inputs; Process; Outputs; Key interactions between the stakeholders within the financial reporting supply chain; and Context Factors. One year later, the Public Company Accounting Oversight Board (PCAOB) developed audit quality framework including 28 potential audit quality indicators divided into three groups: Audit professionals; the audit process; and the audit results. Francis' [5] typology distinguishes six categories of research related to the measurement of audit quality. The aim is to focus on inputs that influence the quality, process, firm and market of the audit, institutions and their regulations as well as the economic consequences of audit outputs. Based on the document published by the IAASB, Chihi [7] proposes a taxonomy of research on audit quality using two approaches: direct (audit process) and indirect (inputs and outputs) approach.

Due to the differences in audit quality frameworks and the plurality of audit quality measurement indicators, we conduct a comprehensive review of audit quality studies to provide a framework which explores the determinants of external audit quality currently used in research and interpreting their results.

We contribute to the literature in the following aspects. First of all, we propose an audit quality framework that includes all the factors indicating the level of the external audit's quality (Auditor-related indicators; Audit-process indicators; Output indicators). Second, we present a systematic literature review on the output indicators of audit quality (auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap). For each audit quality indicator, we provide a summary of the methodological approaches used (Archival/Experimental)

and the main findings. Thirdly, we draw on the results of previous literature and provide suggestions for future research of both academics and regulatory institutions.

The remainder of the article is organized as follows. First, we discuss different definitions of audit quality that are available in different audit literatures. Section 2 discusses the methodology used to collect and analyze research related to the outputs indicators of audit quality. Section 3 reviews and summarizes the literature and publications dealing with outputs indicators of audit quality.

2. Defining Audit Quality

Since Deangelo's first attempt at a definition, no definition has led to universal recognition. Indeed, audit quality is a complex concept with several indicators [2,5,8]. Practitioners can define audit quality by reference to applicable audit standards and by the veracity and fairness of financial statements to users. However, the accounting literature links audit quality to several measurement variables.

DeAngelo [4] defined audit quality by combining two important aspects: competence and independence. By reporting the definition as cited by Deangelo: audit quality is "*the market-assessed joint probability that a given auditor will both discover a breach in the client's accounting system and report the breach*".

This definition was later criticized by several researchers. To Knechel et al. [6], the definition has not been reconciled with the audit risk model and the perception of market participants can be erroneous. DeFond and Zhang [9] argue that this definition has redefined the auditor's role to the simple detection and notification of mechanical violations of generally accepted accounting principles (GAAP).

The table 1 below illustrates the most recognized definitions of audit quality.

Table 1. Definitions of audit quality

Categories	Definition	Reference
Practitioner literature	The term audit quality encompasses the key elements that create an environment which maximizes the likelihood that quality audits are performed on a consistent basis.	[2]
	Meeting investors' needs for independent and reliable audits and robust audit committee communications on: (1) Financial statements, including related disclosures; (2) Assurance about internal control; and (3) Going concern warnings.	[3]
	A professional service delivered by experts in response to economic and regulatory demand.	[6]
	An audit involves the directors of a company, engaging auditors to report in a way prescribed by legislation (a true and fair view opinion) to the users.	[8]
	Audit quality is one performed "in accordance with generally accepted auditing standards (GAAS) to provide reasonable assurance that the audited financial statements and related disclosures are (1) presented in accordance with GAAP and (2) are not materially misstated whether due to errors or fraud."	[11]
Accounting literature	Higher audit quality is "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics."	[9]
	Audit quality is the probability financial statements containing no material omissions or misstatements.	[10]
	Audit quality describes how well an audit detects and reports material misstatements of financial statements, reduces information asymmetry between management and stockholders and therefore helps protect the interests of stockholders.	[12]
	Audit quality is how well an audit process detects and reports material misstatements in the financial statements.	[13]
	A level of confirmation between the value an audit creates and the expectations to audit of third-party users and audit clients.	[14]

In summary, audit quality has been a topic of significant interest in scientific research. In order to improve the understanding of audit quality, numerous studies have tried to detect the association between audit quality and other variables. However, since audit quality is difficult to observe, studies have operationalized it in different ways. From the above, we can conclude that "Audit quality is an audit mission performed by a competent, independent, and experienced professional, in accordance with generally accepted auditing standards, to provide financial statements' users with reasonable assurance, in the auditor's report, that the financial statements and related information are presented in accordance with auditing standards and are not materially misstated."

3. Methodology

In order to identify papers dealing with output indicators of audit quality, we adopt a systematic literature review (SLR) based on the guidelines presented by Kitchenham et al. [15].

In contrast to an ad hoc literature review, an SLR is a methodologically rigorous review of research results that identify, evaluate and interpret the available empirical studies conducted on a topic, research question, or a phenomenon of interest [16].

The steps proposed by Kitchenham [16] and Kitchenham et al. [15] include three main stages: **Planning the review, Conducting the review and Reporting on the review.**

In the stage of "planning the review", researchers identify the need for a review, specify research questions,

and develop a review protocol. When conducting the review, they identify the research, select the primary studies, assess the quality of the studies, extract, analyze, and synthesize data. When reporting the review, the researchers write the report to disseminate their findings from the literature review [17].

This section describes the steps of the methodology used to perform the systematic review conducted in this study.

Planning the review

The issue of measuring audit quality has been studied over a long period of time in numerous documents. This stream of research has been based largely on the question of what drivers indicate the level of audit quality.

Several initiatives of measurement of audit quality have been conducted by regulatory bodies of the audit profession [1,2,3] and researchers [4,5,6], whose objective is to determine the most effective way to assess and determine audit quality.

Following the main objective of our research work, the research questions can be formulated as follows:

Research Question n°1: How can we conceptualize taxonomy for the output indicators of audit quality (Auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap)?

Research Question n°2: What is the result deduced from the overall research on outputs indicators of audit quality?

Conducting the review

The search process was conducted between early January and late April 2020 and was based on the search

engine "Google Scholar (GS)" which allows displaying all papers published on all scientific databases. The search process was limited to the search for relevant articles and papers published post-2012 by researchers and international regulatory bodies, aimed at investigating the link between output indicators and the external audit quality. The sets of criteria to determine papers to be included are:

1. Recent work addressing output indicators of the audit quality;
2. Articles published between 2013 and April 2020;
3. Articles published in specialized journals and/or conference;
4. Articles that contain the keywords in the title, the abstract or full text;
5. Relevant documents issued by international regulatory bodies.

Fig. 1 shows the study selection process adopted in this paper using Kitchenham's [16] guidelines.

The first stage involved using the following search query: "Audit Quality" **and** "Auditor's Report" or "Bankruptcy" or "Client Satisfaction" or "Auditor Litigation" or "Audit Expectation-Gap".

As a result of the first stage, 3,950 primary studies were identified.

In the first iteration, the papers identified in the first stage were examined while in the second iteration the references contained in remaining papers in stage 3 were examined. Subsequently, stages 3 and 4 were undertaken twice.

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, year of publication and the country;
2. Methodological elements adopted: Archival or experimental;
3. Principle results of the study.

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 synthesized 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.

Table 2 provides the number of papers excluded in each iterative stage.

The first iteration consists of selecting papers that answer our research questions based on the keywords entered in the "Google Scholar" database. At the first stage, 3,950 papers have been identified and we have undertaken stages 2 to 4.

The number of papers excluded based on their titles (stage 2) is 3,154 because Google Scholar's search results are sorted by relevance, so the last few pages of results contain off-topic articles with keywords that appear only a few times in the body of the text or in the references used by the researchers. At this stage, we have excluded papers whose titles clearly state that the objective and the research question addressed do not fall within our field of study.

Several titles of the articles remain vague and do not show the overall purpose of the research, and therefore a reading of the abstracts allowed us to exclude an article. So, at stage 3, we exclude 493 papers.

At stage 4, we exclude 245 papers whose full text does not include the research elements for our study or missing data.

The second iteration is based on the selection of papers from the references of the remaining papers at stage 3 and whose titles meet our selection's criteria of papers. So at stage 5, the number of papers selected is 1,227, and we excluded repeated articles, in stage 6, due to their consideration in the first iteration, and we undertook steps 3 and 4. Overall, the systematic review resulted in the identification of 89 relevant papers (58 from the first iteration and 31 in the second one).

Table 2. Number of papers excluded in each iteration and stage.

Iteration	Primary papers	Stage of exclusion	N ° of papers excluded	N ° of papers remaining
1	Stage 1: 3,950	Stage 2: Title	3,154	796
		Stage 3: Abstract	493	303
		Stage 4: Full text	245	58
Number of papers remaining from the first iteration				58
2	Stage 5: 1,227	Stage 6: Repeated papers	845	382
		Stage 3: Abstract	254	128
		Stage 4: Full text	97	31
Number of papers remaining from the second iteration				31
Final number of papers				89

4. Results

We organize our review around five outputs indicators of audit quality. The choice of these five indicators is based on a set of research [1,5,7,9], that has classified the indicators of audit quality in great majority around 3 main parts: Auditor-related indicators; Audit-process indicators and Output indicators.

Following these research, we propose the following taxonomy:

Indicators for measurement of the audit quality	
Auditor-related indicators:	
<ul style="list-style-type: none"> ■ Reputation; Size of audit firm; Audit fees; Audit tenure; experience in audit; Auditors' experience in the audited business sector; Audit market; Audit regulation. 	
Audit-process indicators:	
<ul style="list-style-type: none"> ■ Auditor competence and independence; Auditor team behaviors; Budgetary and time pressure; Organizational commitment; Auditor judgment; Auditor skepticism; Due care compliance; Audit environment; Audited services governance; Audit procedures; Analytical procedures; Obtaining and evaluating audit evidence. 	
Output indicators:	
<ul style="list-style-type: none"> ■ Auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap. 	

Figure 2. Audit Quality Framework

● Audit Quality Attributes and Auditor's Report

The audit report is the main deliverable that deals with the outcome of the audit process. Because of its nature as a legal document produced by an external and independent professional, it is a potential source of information for users.

The main question in the current debate on audit reporting is whether the standard audit report communicates the appropriate information to stakeholders and whether its form and content promote audit quality [18]. Also, whether there is a relationship between engagement partner disclosure and improved audit quality.

An audit report that clearly conveys the outcome of an audit is likely to positively influence audit quality [6].

Table 3. Audit Quality Attributes and auditor's report

Reference	Method	Sample	Principle results
Audit partners			
[19]	Archival	800 individual auditors / China	Positive association between audit quality and specific audit partners, marked by the conservatism of auditors who have a western education or work for a Big N and the aggressiveness of auditors with a master's degree or higher or who have a political affiliation.
[20]	Archival	Companies listed on the London Stock Exchange / UK	Positive relationship between improved audit quality and partner engagement signature.
[21]	Archival	More than 3900 client fiscal-year observations / Netherlands	Insignificant relationship between the improvement of the audit quality and audit partner signature.
[22]	Experimental	19 practicing audit partners / Canada	Positive relationship between disclosing engagement partners and improving audit quality.
[23]	Archival	36049 firm - year observations / U.S	

Table 3 Continued

Key/Critical audit matters (KAM/CAM)			
[24]	Experimental	165 respondents to the report of IAASB's 2012 Invitation to Comment / Several countries	Users support IAASB's proposals, including: KAM, Going concern, Auditor's judgments and process and the disclosure of the engagement partner's name.
[25]	Experimental	141 Alumni from a public business school / U.S	CAM significantly impact investment decisions contrary to the standard audit report or CAMs mentioned in the footnotes.
[26]	Experimental	150 non-professional investors / U.S	Despite their impact on reducing management's credibility, CAM do not have an impact on investor's valuation judgments.
[27]	Archival	Post-2007 research / Several countries	While the audit report is useful for stakeholders, it should contain more information about the entity and the audit, including accounting policies, inherent risks, the audit process, and audit judgments.
[28]	Experimental	98 students enrolled in a graduate accounting degree / Canada	The KAMs communicated in the audit report have an attention-directing impact.
[29]	Experimental	Investment professionals and non-professional investors / Several countries	KAM are not of interest to non-professional investors as opposed to investment professionals.
Impact of new audit report format			
[30]	Experimental	61 bankers, 118 preparers and 123 auditors / Netherlands	The information sought by the sample studied mainly concerns: (1) Audit process and (2) Disclosure of errors in the financial statements. The format of the audit report is not material.
[31]	Archival	40 recent research papers from 2007 to mid-2015 / Several countries	The new audit report has a positive impact on the flow of information to users.
[32]	Archival	488 companies listed in London Stock Exchange / U.K	Negative impact of the expanded audit report on investor perception.
[33]	Archival	French audit reports issued from 2002 to 2011 / France	Disclosure of evaluation justifications has an impact on investment decisions beyond the first year.
[34]	Archival	London Stock Exchange premium companies / U.K	The change in regulation does not affect investor reaction to audit reports or the audit quality.
[35]	Archival	All listed companies / New Zealand	Positive relationship between the new audit reporting regime and improved audit quality.
[36]	Archival	London Stock Exchange premium companies / U.K	The adoption of the new audit report has a significant impact on improving the financial reporting quality.

The traditional model of the audit report has been the subject of discussion and debate, as shown in table 3, due to concerns about its content and communicative value. The lack of transparency regarding the financial statements, the audit engagement and the auditor was a major concern. There is evidence that the audit report does not fully fulfil its role as a document containing information on the credibility of the financial statements and as a signal and confidence mechanism for the benefit of the market. We also note that research is conducted much more in developed countries and has resulted in a consensus on research findings.

As a result, significant recent changes to the model have been proposed and, in some cases, approved by audit standard setters [37, 38]. These initiatives have suggested the following additions to the audit report:

1. Audit engagement partners' names;
2. Statement of the auditor's independence;
3. Basis for the audit opinion
4. Critical / Key Audit Matters;
5. Auditor Commentary on Going Concern.

Following the adoption of these standards, several studies have looked at the effect of introducing the new audit report, and find mixed results. One stream of research claims that the adoption of the new standardized audit report provides informational value for stakeholders [31, 35, 36], while another stream of research found a slightly positive or even zero impact [32].

In sum, research addressing the relationship between audit quality and the audit report appreciates the efforts made in recent years, while not ignoring the fact that several initiatives need to be undertaken to improve the informational value of the audit report.

● Audit Quality Attributes and Bankruptcy.

Bankruptcy represents the negative end of audit quality. For this reason, several studies have focused on the elements of bankruptcy prediction through the information contained in the audit report. While others have looked at consequences of bankruptcy on reputation when an unqualified opinion is issued just before bankruptcy.

Table 4. Audit Quality Attributes and bankruptcy

Reference	Method	Sample	Principle results
Impact of bankruptcy on the behavior and type of auditor’s opinions			
[39]	Archival	93 companies that had received first-time GCMOs / Sweden	Positive relationship between bankruptcy of the client and the issuance of a going concern modification opinions for the first time, whether by a Big N or not.
[40]	Archival	25 failed and 25 non-failed / New Zealand	Positive but low significant relationship between audit opinion and bankruptcy.
[41]	Archival	823 US and 127 UK first-time GCOs / U.S. and U.K	Investors who are in a creditor-friendly bankruptcy regime react more negatively to a going concern opinion.
[42]	Archival	404 private firms under financial distress and 404 not / Spain	Auditor report has an informative value that helps to avoid a situation of financial distress.
[43]	Archival	5146 non-financial firms / U.S	In the case of a probability of around 8% or more that the client is bankrupt, an auditor’s opinion on going concern must be issued.
[44]	Archival	897 new going concern modification disclosures / U.S	To anticipate bankruptcy, investors refer to earnings announcements rather than the presence of a going concern modification.
[45]	Archival	340 public companies that filed for bankruptcy / U.S	After the Great Recession, auditors are issuing going concern notices before clients go bankrupt.
Elements predicting bankruptcy			
[46]	Archival	42 listed financial companies / U.S	Low effect of going concern opinions in predicting bankruptcy. Auditors are more interested in information other than financial and economic ratios when forming their opinions.
[47]	Archival	404 companies in bankruptcy / Spain	The audit reports of bankrupt firm vary according to the following elements: (1) auditor size, (2) client industry, (3) financial condition and (4) the stage of insolvency legal proceedings.
[48]	Archival	27189 firm-year observations / U.S	Going concern opinions have a significant effect on the prediction of bankruptcy, especially when they are included in a statistical model that also incorporates financial ratios and market variables.
[49]	Archival	1201 bankruptcies and 12589 GCOs / U.S	A going concern opinion leads to a probability of bankruptcy especially for large companies and Big N clients.
[50]	Archival	69 companies listed on the BSE / Romania	The existence of an audit committee does not play a role in preventing a firm from going bankrupt.
[51]	Archival	98 failed and 269 non-failed firms / U.K	Positive relationship between the independence of the audit committee and the prediction of the firm’s insolvency.
[52]	Archival	70,959 company-year observations / U.S	The auditor’s attributes are essential factors in predicting bankruptcy, especially when the auditor is an industry expert, belongs to a large firm, and has a long tenure.
[53]	Archival	516 bankruptcies / U.S	The probability of bankruptcy is low after a clean audit opinion. Also, auditors who have committed a type II GCO error do not suffer any negative effects.
[54]	Archival	404 bankrupt and 404 non-bankrupt firms / Spain	In order to know whether a company is going to fail, any interested party can simply rely on the audit report, and more specifically the type of audit opinion and the comments that accompany it.
[55]	Archival	404 bankrupt and 404 non-bankrupt firms / Spain	The audit report has an informative value and is a useful tool for anticipating the occurrence of bankruptcies.
[56]	Archival	3139 GC opinions relating to 508 firms / Japan	Positive relationship between a going concern announcement and an increased probability of bankruptcy.
[57]	Archival	2921 first-time GCOs / U.S	Positive and lower significant relationship between the issuance of a going concern opinion and bankruptcy. GCO varies according to the type of auditor and the size of the auditee.

From table 4 above, we can divide research on the relationship between audit quality and bankruptcy into three blocks.

A stream of research studies the impact of bankruptcy on the behavior and type of auditor’s opinions. They have found that the auditor becomes more conservative after bankruptcy and increasingly issues going concern modifications.

A stream of research that focuses on the elements that can predict bankruptcy, the most important of which is the auditors’ opinion on going concern, which for the majority of researchers are the only indicator that provides information on the survival of firms [48, 57], while others have found no relationship between the issuance of a going concern opinion and the bankruptcy of a firm [44, 46].

Bankruptcy prediction models, on the other hand, have attracted the interest of researchers and have proposed several models. The first was proposed in the 1970s [58,59] based on the analysis of traditional financial ratios. Subsequently, and with advances in technology, bankruptcy prediction models have evolved through the use of techniques such as data mining [60] and artificial intelligence [54].

● Audit Quality Attributes and Client Satisfaction

Kotler [61] defined satisfaction as "Customers' feeling of pleasure/disappointment after comparing the perceived quality of a product with their expectations". With respect to audit quality, it is the clients' (auditees) perception of how well the audit team meets their expectations. By delivering high quality services to their clients, it will maximize client satisfaction.

Table 5. Audit Quality Attributes and Client Satisfaction.

Reference	Method	Sample	Principle results
[62]	Experimental	56 respondents from head of finance, head of internal audit and staff / Indonesia	A positive relationship between client satisfaction and (1) auditor's prior experience, (2) industry expertise, (3) responsive to the client's needs, (4) conduct of audit field work, (5) commitment to quality, (6) exercised due care throughout the engagement and (7) respect of high ethical standards.
[63]	Experimental	70 Audit firm's clients listed on the Toronto Stock Exchange / Canada	Positive relationship between client satisfaction and (1) audit firm's service customization and (2) responsiveness.
[64]	Experimental	Heads of safety programs within Embakasi Constituency / Kenya	Positive relationship between client satisfaction and standard setting. While, there is a negative relationship between client satisfaction and behavior modification.
[65]	Experimental	1500 non-profit organizations / Belgium	Clients are satisfied with the auditor's behavior more than economic factors.
[66]	Experimental	204 auditors at two public accounting firms / U.S	A stronger relationship between auditors and auditees leads to a better audit service.
[67]	Experimental	235 finance professionals and 35 council internal auditors / Australia	Significant association between client satisfaction and (1) auditor expertise and (2) responsiveness to client needs.
[68]	Experimental	39 audit committee chairs - members and 42 financial analysts - fund managers / Australia	Client satisfaction is related to the attributes of audit teams more than those of audit firms.
[69]	Experimental	600 SMEs companies as listed in Companies Commission / Malaysia	Negative relationship between client satisfaction and (1) reliability, (2) responsiveness, (3) assurance, (4) tangible and (5) empathy.
[70]	Experimental	115 Financial managers / U.S	Participation in the service exchange increases client's satisfaction.
[71]	Experimental	384 registered companies / Malta	Negative relationship between client satisfaction and reliability. While tangible improves client satisfaction.
[72]	Experimental	80 respondents from all the listed companies / Jordan	Positive relationship between client satisfaction and (1) field work conduct and (2) auditor's competence. While, there is no relationship between client satisfaction and experience, responsiveness, independence and involvement.
[73]	Experimental	60 companies listed on the Nairobi Securities Exchange / Kenya	Positive relationship between customer satisfaction and (1) tangibility and (2) responsiveness
[74]	Experimental	94 Government parastatals audited by private auditors / Kenya	Positive association between client satisfaction and (1) auditor independence, (2) responsiveness and (3) technical competence.
[75]	Experimental	All the public and private companies and state-owned organizations / Botswana	Positive relationship between client satisfaction and (1) audit firm's independence; (2) audit team's industry expertise and (3) interaction with audit committee.
[76]	Archival	One company and one certification body for external auditing / U.K	Contextual factors and factors related to the audit process influence client satisfaction.
[77]	Experimental	65 listed venture capital firms / Malaysia	Among the 5 dimensions studied, the elements that satisfy the clients are the tangibility and the reactivity of the audit.
[78]	Experimental	318 BKM UPK that conducts - implements Independent Audit / Indonesia	Client satisfaction depends on the following elements: understanding of the client's industry, independence, involvement of the manager and the audit committee, and compliance with ethical standards.
[79]	Experimental	70 responds from Small and Medium Enterprises / Malaysia	Auditor's competence improves client satisfaction.

Little research has correlated audit quality with client satisfaction, and it focused on the audit team and audit firm attributes that are relevant to auditee satisfaction. In general, the attributes most studied are:

1. **Prior experience:** The auditor's experience with the client.
2. **Industry expertise:** The auditor's knowledge of the risks, practices and standards related to the client's industry;
3. **Responsiveness:** The auditor's response to the client's needs;
4. **Technical Competence:** The auditor's technical ability to assist the client in minimizing risk and creating value;
5. **Compliance with general audit standards:** The auditor's adherence to current standards of practice;
6. **Conduct of audit field work:** Audit firms that perform audit field work are likely to provide a high quality audit;
7. **Empathy:** The degree of auditors' understanding of the client's business challenges;
8. **Audit tangibility:** The appearance of staff and physical facilities.

Behn et al. [80] were the first to conduct a study that linked audit attributes to client satisfaction. Their study of Controllers of Fortune 1000 companies found a positive association between client satisfaction and (1) responsiveness to client needs, (2) executive involvement, (3) ongoing interaction with the audit committee, (4) appropriate conduct of field work, (5) quality of commitment, (6) industry expertise and prior audit team, (7) firm experience with the client and (8) changing auditors.

Subsequently, several studies were conducted in many countries. The post-2012 studies are presented in the table 5.

The results of this research show mixed results but still offer a consensus on the impact of audit quality attributes in improving client satisfaction, and consequently audit

quality. In addition, team characteristics were rated more important than audit firm characteristics.

The audit quality attributes that had the greatest impact on client satisfaction are: Responsiveness to client needs; Auditor independence; Field work conduct; Technical competence; Audit tangibility and prior experience.

● **Audit Quality Attributes and auditor litigation**

Auditor litigation is an elementary factor in measurement of audit quality, as it not only affects the reputation of the auditor or the audit firm, but also represents a significant burden that can worsen the financial condition of audit firms. Due to its importance in measuring audit quality, audit litigation has gained prominence among researchers.

As shown in table 6, the majority of research on auditor litigation has been conducted in developed countries, using archival methods, due to the availability of databases that offer the possibility of collecting data, as well as the introduction of regulatory reforms (PSLRA and SOX) [85, 90].

Studies using litigation as a dependent variable have focused on the causes and consequences of legal actions against auditors. Causes of litigation cited include: Auditor ethics [86], positive internal control opinions [87], misstatement severity [92], lack of prior experience and others. While others studies have focused on audit fees [92], market reaction [94], the impact of litigation on auditor reputation [95], auditor behavior, going concern opinions [78, 97] and especially audit quality. Another stream of research has focused on the decisions of jurors and judges [89].

Overall, all the research converges towards a common result, auditors being sued provide higher audit quality because they have more wealth at risk in case of litigation. Thus, the topic of audit litigation is studied, not as a consequence of poor quality audit, but rather as an upstream risk that should be sought to prevent [96].

Table 6. Audit Quality Attributes and auditor litigation

Reference	Method	Sample	Principle results
Causes of auditor litigation			
[81]	Archival	147 firms that were subject to class action lawsuits naming auditors / U.S	Issuing a going concern report reduces litigation risk in general, but increases litigation risk when it is issued for financially stressed clients.
[82]	Archival	1169 observations of financial reporting lawsuits / Several countries	Revenue restatements have a negative and severe effect in the context of litigation.
[83]	Experimental	20 audit firms (156 respondents) / Nigeria	Positive relationship between litigation risk and audit fee, audit independence; However, an insignificant relationship between litigation risk and audit firm size, audit tenure and non-audit fees.
[84]	Experimental	442 participants via Amazon Mechanical Turk / U.S	There is a high risk of auditor litigation when auditors make judgments that follow explicit encouragement from regulators.
[85]	Archival	2 503 class action lawsuits / U.S	Reforms of both PSLRA and SOX have reduced auditor litigation.
[86]	Experimental	220 auditors who work in the Public Accounting Firm / Indonesia	Negative relationship between auditor litigation and auditor ethics.
[87]	Archival	605 associated with restatements Internal Control Weaknesses / U.S	Negative relationship between the issuance of an adverse audit opinion on internal control and auditor litigation.
[88]	Archival	180 firm-year observations / Korea	Positive association between auditor litigation risk and operating losses and high revenue growth.
[89]	Archival	55 340 observations / U.S	No evidence of an impact of judge ideology on auditors' litigation risk.
[90]	Archival	Federal securities class-action lawsuits brought against auditors / U.S	Diminution of the litigation risk under the article 10(b) (an anti-fraud provision). Also, researchers found a positive relationship between increased liability and improved audit quality.
Consequences of auditor litigation			
[91]	Archival	401 companies listed on TWSE and GTSM / Taiwan	In an environment with a low risk of litigation, a high degree of dependence of an auditor on the client does not lead to accounting conservatism of the audited client.
[92]	Archival	Studies on determinants and consequences of securities class action lawsuits / Several countries	One of the main reasons for lawsuits against auditors is poor quality financial reporting. These lawsuits affect audit fees, audit planning decisions and client portfolio adjustment decisions.
[93]	Archival	933 lawsuit cases against auditors / U.S	After auditor litigation, auditors tend to increase audit efforts and charge higher fees.
[94]	Archival	301 litigation firms / U.S	When the auditor is also sued, investors do not react to the announcement of securities litigation against the client company.
[95]	Experimental	8 listed companies audited by the Big Four / Nigeria	Significant effect of audit litigation on auditors' reputation and adverse effect on pricing of audit services.
[96]	Archival	445 savings bank observations / Korea	An increase in litigation risk does not systematically increase the audit quality. Also, Big N firms tend to reject riskier clients.
[97]	Archival	10 006 auditor litigation / U.S	When analyzing audit firms in the same industry and after auditor litigation, audit fees and going concern opinions are more likely to increase.

● Audit Quality Attributes and Expectation-Gap

The external auditor is an independent professional whose role is to guarantee the reliability of a company's financial communication to the stakeholders (investors, company management, employees, lenders, suppliers and others). As a result, there are many possible users of financial statements who have different expectations that cause an "Audit expectation gap", which is the difference

between what auditors actually do and what third parties think auditors do or should do when conducting the audit practice [98].

Several researches have therefore taken an interest in the audit expectation gap and highlighted its existence in several developed and developing countries: Germany [99]; Romania [100]; Netherlands [30]; Nigeria [101] and others.

Table 7. Audit Quality Attributes and Expectation-Gap.

Reference	Method	Sample	Principle results
Audit expectation gap factors			
[102]	Experimental	110 audit firms / Kenya	Positive relationship between the audit expectation gap and (1) auditor's effort and competence; (2) user needs.
[99]	Experimental	1628 Auditors, 2100 External groups, 2068 Internal groups / Germany	Due to social aspects and recurring changes in accounting requirements, the audit expectation gap is a persistent phenomenon.
[103]	Experimental	30 pairs of bankers from several local banks and accountant educators from several universities / Indonesia	To make investment decisions, bankers are interested in the auditor's responsibilities for detecting fraud and material misstatement.
[104]	Experimental	50 auditors, 50 bankers and 50 students of the ICA / Ghana	Factors contributing to the audit expectation gap include a lack of awareness about auditor's responsibilities (fraud detection and prevention as well as judgment in the selection of audit procedures) and the strength of the internal control structure.
[105]	Experimental	190 Auditors, 193 audited and 127 audit users / Hungary	Factors of the audit expectation gap include: (1) Failure of the auditor's performance; (2) deficiencies in auditing standards; and (3) lack of interpretation of audit functions.
[106]	Experimental	78 Accounting academics, 77 accounting practitioners, and 74 users of financial statements / U.S	Existence of the audit expectation gap between financial statement users and accounting practitioners on the one hand and accounting academics and financial statement users on the other.
[107]	Experimental	145 Auditors, 320 Auditees, 238 Financial communities and 285 non-financial communities / Libya	The audit expectation gap is mainly due to: Insufficient standards and ignorance of the auditor's responsibilities and roles.
[108]	Experimental	327 Certified auditors / Jordan	Lack of users' awareness of financial statements increase the audit expectation gap
[109]	Experimental	738 Shareholders and directors of listed companies / Pakistan	The audit expectation gap arises primarily from the stakeholders' lack of understanding of the auditor responsibilities for detecting errors and frauds and detecting illegal acts.
[110]	Experimental	Public sector / Bahrain	The factors of the audit expectation gap are: Auditors' efforts and skills, users' knowledge about the audit profession and their needs.
[101]	Experimental	Academics, accountants, investors, stockbrokers and bankers / Nigeria	Lack of understanding of auditor responsibilities, especially in the prevention and detection of fraud.
[111]	Experimental	88 Auditors, 83 financial statements' preparers, and 90 financial statements users / Saudi Arabia	The audit expectation gap stems mainly from a lack of understanding of the auditors' responsibilities, especially with regard to fraud detection.
[112]	Experimental	33 Auditors, 42 Investors, 36 Investment Analysts, 35 Credit Analysts, 28 Regulatory Agencies / Bangladesh	The audit expectation gap exists in auditor's role in: (1) Fraud detection, (2) Providing non-audit services; (3) The meaning and usefulness of the auditor's report; (4) Going concern reporting assessment.
Audit expectation gap reduction factors			
[113]	Experimental	320 Bank loan officers / Malaysia	Negative impact of the audit expectation gap on the loan decision quality. And to mitigate this negative impact, the auditor must have sufficient knowledge and experience.
[114]	Experimental	92 Auditors, 30 Banks, and 29 securities investment trusts / Turkey	Audit education and the auditors' experience help to reduce the audit expectation gap.
[30]	Experimental	61 Bankers, 118 Preparers and 123 Auditors / Netherlands	Clarification of the audit process and information about the going concern reduces the audit expectation gap.
[100]	Experimental	438 students / Romania	Positive relationship between audit education and the reduction of the audit reasonableness gap.

According to these studies, shown at table 7, there are three main factors that may effect on the audit expectation gap:

1. The auditor's ability and effort to detect fraud;
2. Nature and meaning of audit report information's;
3. Early warning by auditors of corporate failure.

And, the factors that have a significant effect on reducing the audit expectation gap are:

1. Audit education;
2. Meaningful standards;
3. Experience of the auditor.

On the other hand, there is evidence that the audit expectation gap is a persistent phenomenon as international audit standards and accounting practices improve over the years [97].

5. Conclusions and Suggestions

Since Deangelo's [4] famous article in 1981, research on audit quality and its main indicators has undergone a remarkable evolution, and is one of the most sought-after topics in audit.

On this basis, the purpose of our paper is to form a synthesis of the dominant research on output indicators of audit quality. By presenting a research framework that brings together the main indicators of audit quality. We review the main research on the output indicators.

First, we provide, at the level of the first section, the main definitions cited by regulators and researchers. We concluded that "Audit quality is an audit mission performed by a competent, independent, and experienced professional, in accordance with generally accepted auditing standards, to provide financial statements' users with reasonable assurance, in the auditor's report, that the financial statements and related information are presented in accordance with auditing standards and are not materially misstated."

Then, we reviewed a total of 89 studies and publications authored post-2012, which relates to outputs indicators that indicate the level of audit quality through five indicators: auditor's report, bankruptcy, client satisfaction, auditor litigation and expectation-gap.

By analyzing research on the relationship between the audit report and audit quality, we conclude that all research indicate that the audit report is not very informative and suggests in the majority cases that the audit report should contain: an opinion on going concern; detailed information on the process used by the auditor; Communication of critical/key audit matters and audit engagement partners' names.

Research on the relationship between audit quality and bankruptcy can be divided into three blocks. (1) A stream of research that studies the impact of bankruptcy on the behavior and type of auditor's opinions. They have found that the auditor becomes more conservative after

bankruptcy and increasingly issues going concern modifications. (2) Another line of research focuses on the elements that can predict bankruptcy, the most important of which is the auditors' opinion on going concern, while others have found no relationship between the issuance of a going concern opinion and the bankruptcy of a firm. (3) And thirdly, research that has focused on bankruptcy prediction models, such as the model based on the analysis of traditional financial ratios, the data mining model and artificial intelligence.

The third indicator concerns client-satisfaction. Through experimental studies, researchers reported the elements that can satisfy clients on the audit work. These elements concerned, for example: Responsiveness to client needs; Auditor independence; Field work conduct; Technical competence; Audit tangibility and prior experience.

Studies on auditor litigation have focused on the causes and consequences of legal actions against auditors. Causes of litigation cited include: Misstatement severity; Auditor ethics; Positive internal control opinions; Lack of prior experience and others. While others have focused on the impact of litigation on auditor reputation, market reaction, auditor behavior, audit fees, going concern opinions and especially audit quality. Another stream of research has focused on the decisions of jurors and judges. Overall, all the research converges towards a common result, auditors being sued provide higher audit quality because they have more wealth at risk in case of litigation.

Finally, we considered that the analysis of the factors behind the audit expectation-gap is essential since it can provide information on the measures indicating the level of audit quality. The common cause of expectation-gap between countries is the misperception of the auditors' responsibility to detect and prevent fraud.

The audit quality has given rise to a great deal of research; admittedly, there are still lines researches that need to be explored.

Firstly, as we are only interested in research on output indicators of audit quality, it is therefore appropriate to conduct a literature review on input elements and the audit process. Secondly, we note that studies are much more common in developed countries. Experiences from developing countries will enrich the debate on the determinants of audit quality. Thirdly, research on the determinant client satisfaction and audit expectation gap has largely adopted the experimental method using surveys as opposed to bankruptcy research which has used the archival method. The adoption of new methods can bring and enrich the results.

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