



International
SOCIAL SCIENCES
STUDIES JOURNAL



SSSjournal (ISSN:2587-1587)

Economics and Administration, Tourism and Tourism Management, History, Culture, Religion, Psychology, Sociology, Fine Arts, Engineering, Architecture, Language, Literature, Educational Sciences, Pedagogy & Other Disciplines in Social Sciences

Vol:5, Issue:37
sssjournal.com

pp.3089-3105
ISSN:2587-1587

2019
sssjournal.info@gmail.com

Article Arrival Date (Makale Geliş Tarihi) 08/04/2019 | The Published Rel. Date (Makale Yayın Kabul Tarihi) 25/06/2019
Published Date (Makale Yayın Tarihi) 25.06.2019

AUDITING FAIR VALUE MEASUREMENTS and OTHER COMPLEX ESTIMATES: A STATE-OF-THE-ART LITERATURE REVIEW and RESEARCH GUIDELINES

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Article Type : Research Article/ Araştırma Makalesi

Doi Number : <http://dx.doi.org/10.26449/sss.j.1547>

Reference : Acar, M. (2019). "Auditing Fair Value Measurements And Other Complex Estimates: A State-Of-The-Art Literature Review And Research Guidelines", *International Social Sciences Studies Journal*, 5(37):3089-3105.

ABSTRACT

The standard setters argue that Financial Accounting Theory is derived from a basically coherent conceptual framework, currently focussed on 'comprehensive income' as measured by 'changes in assets and liabilities', in turn preferably measured at fair values. Within this regard, it is obvious that fair value measurement has gained so much importance among both financial statement preparers and as well as auditors. To help understand how auditing has evolved within this evolving fair value based accounting world, this study provides a detailed literature review on auditing of fair value accounting measurements and other complex estimates. I splitted the literature into three parts such as association between auditing fair value measurements and audit quality, audit fees and other challanges and constraints on auditing fair value measurements. Besides, this detailed literature analysis is conducted on three dimensions: (1) Fair value accounting and its evolution through standard setters, practitioners and academics, (2) an emphasis on the auditor's need to understand how fair value measurements are prepared in both reel and financial sector, and (2) the audit steps and procedures necessary to verify and attest to fair value measurements, including an awareness of the potential biases inherent in auditing fair value.

Key Words: Fair Value Accounting, Auditing, Hedge Accounting, Fair Value Measurements

JEL Classifications: M4, M40, M41, M42

1. INTRODUCTION

The importance of the audit function in the corporate regulatory framework has been enormously increasing in the last decade along with the adoption of Fair Value Accounting (FVA). Auditing standards and the current standard unqualified audit report (clean opinion) outline the purpose of an audit as follows: The purpose of an audit is to provide financial statement users with an opinion by the auditor on whether the financial statements are presented fairly, in all material respects, in accordance with the applicable financial reporting framework. An auditor's opinion enhances the degree of confidence that intended users can place in the financial statements. (AICPA (American Institute of Certified Public Accountants) 2011a, AU-C (Clarified Statements on Audit Standards) 200, IFAC (International Federation of Accountants) 2009a, ISA (International Standards on Auditing) 200; and PCAOB (Public Company Accounting Oversight Board) 2003 AU 110). Within this regard estimation uncertainty, or lack of measurement precision, accompanied by fair value accounting has increased over time and also result in some complexities in auditing financial statements. In other words, the subjectivity inherent in estimating future events, coupled with the potential high degree of measurement uncertainty, makes auditing fair value measurements and other complex estimates (hereafter, collectively, FVOEs) challenging for auditors (PCAOB 2007, 2010).

Within this respect, this paper reviews and discusses implications of academic research that should be relevant to auditors, standardsetters, and academics who increasingly deal with the complexities of auditing fair value measurements. I splitted the literature review into three parts: i) Literature review related to auditing FVOEs and Audit Quality, ii) Literature review related to auditing FVOEs and audit fees and finally, iii) Literature review related to auditing FVOEs and other auditor related issues (other challenges and constraints on auditing fair value measurements). Remaining of the paper is as follows: Section 1 briefly explains fair value accounting and within this concept auditing FVOEs, Section 2 reviews the literature under three subtitles (audit quality, audit fee, other auditor related issues) and lastly, Section 3 concludes the paper.

1.1 Fair Value Accounting and Auditing Fair Value Measurements

Fair value for financial reporting purposes is defined as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (ASC 820). Measurement constitutes the cardinal activity in the process of financial reporting (Barth 2006). The activity of measurement consists of two parts: (a) identifying a valuation base with respect to which measurement is to be made and (b) computing the value of the asset/liability in the selected valuation base. Within this respect fair value measurement requires: (a) the income approach, which capitalizes the projected income stream from the asset; (b) the cost approach that defines the cost as the current replacement value; or (c) the market value approach that adopts prices and other related factors used in market deals in the same or commensurable assets or liabilities. This valuation base adopts market multiples derived from a set of comparisons (Singh and Doliya 2015).

SFAS No. 157 (now codified in FASB ASC 820) establishes a framework for measuring fair value and provides a hierarchy with three levels that are distinguished by the inputs used to derive estimates (see FASB 2007).

Level 1: These are market inputs reflecting quoted prices for identical assets or liabilities in active markets;

Level 2: These are: (a) market inputs reflecting quoted prices for identical assets or liabilities in inactive markets, or quoted prices for similar assets or liabilities in all markets, adjusted for differences; (b) market inputs other than quoted prices, such as interest rates, yield curves, volatilities, and default rates; (c) market inputs not directly observable for an asset or a liability, but corroborated by other market data through correlation or other means;

Level 3: These inputs are entity inputs.

Because orderly transactions between market participants may or may not be observable at the valuation date, Level 3 valuations are based on management’s judgment and assumptions about unobservable inputs and are referred to by some market observers as being marked to “make believe” (Weil 2010). From the hierarchy level it is obvious that fair value measurements based on Level 1 inputs present relatively small difficulty to the auditor as it asserts substantively objective evidence thus very small room for discretion for an entity’s management in determining the fair value. The problematic area for the auditor expands as we move down the input level hierarchy with the decrease in the objectivity of the substantiating evidence supporting the management’s fair value estimates. Verifiability and reliability become the critical issue for Level 2 and Level 3 as these valuations are obtained as theoretical market prices. Actually, Level 3 inputs are unobservable and internal to an entity (Singh and Doliya 2015). The Level 3 classification allows managers to use internal valuation techniques to determine fair values of financial instruments for which observable inputs are either unreliable or unavailable (FASB, 2006, ASC 820). If used appropriately, the disclosure of the Level 3 classification provides useful information to external stakeholders about the financial position of the firm (Barth et al. 1998). However, recent evidence suggests that once an instrument is in the Level 3 classification, managers use the subjectivity inherent in the Level 3 valuations to opportunistically boost income (Laux and Leuz 2009; Penman 2007; Robinson et al. 2015)

There is a widespread belief that because of the subjectivity of fair-value estimates, managers have incentives for substantial reporting judgment and discretion, and thus it is difficult for auditors to challenge. Fair-value measurement is identified as one of the more significant high-risk audit areas in the PCAOB's 2010 report (especially fair-value measurements for financial instruments, non-financial assets, impairment of goodwill, indefinitelived intangible assets, and other long-lived assets; and revenue recognition, and others such as valuation of inventory, income taxes). Primary deficiencies identified by the PCAOB (2011) relating to the fair-value measurement of financial instruments include (1) whether fair-value

measurements are determined using appropriate valuation methods; and (2) the reasonableness of management's significant assumptions used to measure fair value, such as discount rates, and credit loss expectations. Especially, the PCAOB's report states that the attention and additional scrutiny directed towards these high-risk areas will be considerable. In addition, Mark Olson, the former chairman of the PCAOB, expresses concern about the challenges for assurance services related to fair-value estimates, saying that "The increased use of fair value accounting poses a challenge for auditors and the PCAOB" (PCAOB, 2007a).

In a such a complex environment for fair value accounting and as well as audit process for fair value accounting, I believe a literature review on auditing fair value measurements will be beneficial for both academics and practitioners.

2. LITERATURE REVIEW

2.1 Literature Review on Auditing Fair Value Measurements and Audit Quality

Public Company Accounting Oversight Board (PCAOB) inspection reports (PCAOB 2011a, 2011b) describe a number of judgment and estimation impediments related to the audits of fair values and other estimates (FVOEs), establishing that FVOEs are important to consider from an audit quality perspective. As also indicated in ISA 540 (International Standards on Auditing) some financial statement items cannot be measured precisely, but can only be estimated. These financial statement items are referred as accounting estimates. Within this regard, the degree of estimation uncertainty affects the risk of material misstatement of accounting estimates, including their susceptibility to unintentional or intentional management bias (ISA 540, Para. A1-A11). For fair value measurements and accounting estimates, the primary responsibility of auditor is to obtain sufficient appropriate audit evidence about whether:

- i) Accounting estimates in the financial statements, whether recognized or disclosed, are reasonable, and
- ii) Related disclosures in the financial statements are adequate (ISA 540)

Here, under this part of the literature, issues related to auditing FVOEs and its effect on audit quality will be reviewed. DeAngelo (1981) defines audit quality as the probability that the auditor will both discover and report a breach in the client's accounting process. However, it is important to note that investors most of the time are unable to directly observe audit quality and determine whether the reported information is an unbiased indicator of firms' financial performance. Thus, in such an environment that information asymmetry exists, auditors have a very important role to inform the shareholders (e.g., Balvers etc. 1988; Beatty 1989; DeAngelo 1981; Krishnan 2003; Teoh and Wong 1993).

As explained under the subject of fair value measurements and 3-level input hierarchy, Level 3-based valuations are more susceptible to a measurement error at least on two reasons: i) (an) error(s) in the modelling of the relevant price processes and ii) (an) error(s) in the assumptions and other inputs that go into the model for the estimation of the market price in the stipulated (hypothetical) market set up (Singh and Doliya 2015). Both these types of errors could indicate the existence of intentional or unintentional biases and judgements of the management. Fair values, especially Level 3, have a high degree of uncertainty that increases the risk of material misstatement, including the potential for management bias (AICPA, 2012, AU-C 540.A5 and A9). Within this view, FVOEs are more vulnerable to manipulations and earnings management practices (Benston 2008; Griffith et al. 2014).

Actually, given the fact that fair value measurements errors are likely to be very severe for inputs without observable prices (Level 3 and perhaps Level 2) than for inputs directly observable in active markets (Level 1), corporate governance practices and audit process are expected to be more effective at overcoming problems associated with fair value estimations. Using banking firm data from the first three quarters of 2008, Song et al. (2010) examine two important research questions related to fair value information provided by banks under FAS No. 157. First, they compare the value relevance of Level 1 and Level 2 fair values to the value relevance of Level 3 fair values. Second, they consider whether the impact of corporate governance on the value relevance of fair values is greater for Level 3 assets compared to Level 1 and Level 2 assets. They found that all "Level" information is value relevant. However, investors are likely to decrease the weight they place on less reliable Level 3 fair value measurements in their equity-pricing decisions due to the information risk, inherent estimation errors, and possible reporting bias. Also, they found evidence that the value relevance of fair value assets varies with the strength of a firm's corporate governance. Results show that strong corporate governance reduces information asymmetry and mitigating

estimation errors or reporting biases, and this is especially apparent for Level 3 assets where information asymmetry is expected to be the highest.

The role of audit quality in enforcing a firm's compliance with IFRS emerges from the fact that "the drift toward fair value accounting in IFRS will only accentuate the extent to which IFRS implementation depends on managers' and auditors' judgements" (Ball, 2006). Also research suggests that auditors experience difficulty providing assurance about fair value estimates (Martin et al. 2006).

In a field study, Cannon and Bedard (2014) find that financial instruments are the most difficult account to audit. They used an experiential questionnaire to capture auditors' descriptions of a specific engagement experience involving the auditing of a highly challenging FVOEs. In their questionnaire design, they ask respondents to recall a specific situation during a recent engagement in which auditing an FVOE was among the most challenging and important issues in the audit. Several days prior to receiving the survey instrument, they asked the participating firms to send participants a letter explaining the nature of the study so that they would have ample time to consider the most appropriate engagement to discuss and to review engagement information. Further, their study identifies factors that make fair values difficult to audit including the number of significant and/or complex assumptions, high degree of subjectivity associated with these assumptions, high degree of outcome uncertainty, and the lack of objective data. According to the results, financial instruments are the most complex items to audit and the greatest problem facing the profession with regard to auditing FVOEs may not be the lack of professional skepticism, instead they argue it is the inherent risk assessments for FVOEs and it generally increases with estimation uncertainty.

Bratten et al. (2013) classify issues that affect association between auditing FVOEs and audit quality into two subcategories: (1) regulatory and legal influences—that are typically compulsory, and (2) market- or contractually based relationships among audit firms and non-regulatory entities. Under these two subcategories they identify 11 specific, empirical research lines of inquiry focused on understanding the possible underlying audit deficiencies related to FVOEs and affect the audit quality. These 11 research lines are: environmental factors (estimation uncertainty, measurement uncertainty, macroeconomic risks, regulatory and legal influences, audit firms' relationships with non-regulatory entities); task-specific factors (task difficulty, task structure, opportunities and incentives for management bias) and interactions of auditor-specific characteristics with environmental and task factors (knowledge and expertise, professional skepticism, cognitive limitations).

Lee and Park (2013) predict that Big 4 auditors in general provide higher-quality audits regarding the audit of fair-value estimates compared to non-Big 4 auditors. They assume that Big 4 auditors are likely to be more concerned about litigation risk than smaller auditors. As a result, audit failures are likely to produce greater reputation losses, especially for Big 4 auditors, because they possess greater reputational capital. They find that OCI of Big4 clients is more value-relevant than that of non-Big4 clients. Results also show that the differential valuation effect of OCI between Big 4 and non-Big 4 clients is more pronounced for the more subjective OCI components, such as minimum pension liability and foreign-currency translation adjustment, compared to the less subjective marketable-securities adjustments.

Through the very early stages of the literature Trompeter (1994) reports evidence of the influence of partner compensation schemes, GAAP and risk perceptions on audit partner judgments. Fifty-four audit partners participated in a study by completing hypothetical audit cases designed to allow varying ranges of acceptable accounting alternatives (e.g., (1) a restrictive case in which the client wanted to report higher values for marketable securities in direct violation of GAAP, vs. (2) a less restrictive case in which the client wanted to report a relatively small bad debt expense). The study reports that, after controlling for auditors' perceptions of litigation risk, GAAP significantly affects auditors' judgments: highly specific GAAP effectively limits the auditor's range of acceptable alternatives. Besides, in his research, Trompeter (1994) has found evidence that auditors are less able to resist client pressure for aggressive reporting when there is a wider range of acceptable accounting alternatives. As for complexity of fair value measurements and their flexible nature, Gibbins et al. (2001) found that flexible standards are associated with greater conflict and more negotiations between auditors and clients, which may damage audit quality.

Also, in distressed markets, even observed prices may be an inappropriate measure of fair value (Ryan 2008). Vyas (2011) shows that during the 2008 crisis, many financial institutions delayed write-downs of securitized assets relative to the timing indicated by credit quality indices. Thus, auditors responsibility and challenge with FVOEs are more complex at these times.

Ronen (2008) discusses the fair value dilemma from a broader perspective and through his research he search for an answer for more effective settings for both financial statement preparers, auditors and market makers. Ronen (2008) reports that the exit value measures described in FAS 157, and in particular those included in Level 3 measures, suffer from a lack of reliability and can be subject to bias and abuse. To overcome this problem, Ronen (2002a) suggests a financial statement insurance scheme as a market mechanism to align interests of auditors and managers with those of investors. Briefly, Ronen and Sagat (2007) propose that an auditing firm be incorporated with limited liability as an audit risk insurer (ARI) to assume liability for GAAP Deficiency Damages resulting from restatements of financial statements audited by the ARI. As the fullest assumption of professional and ethical responsibility would be essential to both the integrity of the audit and limiting the risk assumed by the ARI, the board of directors and the chief executive and operating officers should be certified public accountants. For similar reasons, the capital required by the ARI should be conflict free and, thus, might likely be private, restricted, and vetted by the audit firm (Ronen and Sagat 2007). The ARI is a mechanism against a restatement of the financial statements of its client. Financial statements could be misleading without violating GAAP, but such situations should be rare and possibly become more so with the passage to a principle-based GAAP from a rule-based regime (Ronen 2002b, c). Ronen (2008) also asserts that although restatements are to a large extent a measure of audit quality, they fundamentally and inherently point to a problem in the quality of the financial statement, which is jointly determined by audit quality and the quality of the client's accounting system. Even though restatements may not be conclusive proof of a decline in audit quality, if auditors assume the risk of restatements, both the quality of audits and the quality of the underlying financial statements prepared by the clients will improve as auditors who are liable to cover shareholder losses up to the limit of the insurance are motivated by incentives to demand higher quality financial statements. To sum up, a company with better quality financial statements would have an incentive to signal its superiority to the marketplace by demonstrating that it could obtain ARI-audited financial statements at a lower premium than other companies in its industry. A company with poorer quality financial statements would be forced to reveal the truly lower quality and reliability of their financial reports; either it would pay a higher risk premium, or it would decide not to engage an ARI to audit its financial statements.

Francis and Wang (2008) claim that Big-4 auditors enforce a higher level of earnings quality through smaller abnormal accruals, a greater likelihood of reporting losses and a higher level of earnings conservatism. The sample and financial data are obtained from the COMPUSTAT Global Industrial and Commercial file for the period 1994–2004. They use observations in countries with investor legal protection measures for the 49 countries surveyed in La Porta 1998, 2006. In their final sample there are 57,966 observations for the period 1996 – 2004 in the abnormal accruals analysis, 85,193 observations for the period 1995–2004 in the loss avoidance analysis, and 68,167 observations for the period 1995–2004 in the earnings conservatism analysis. Their study reinforces the findings in other cross-country studies that earnings are of relatively higher quality in countries with stronger legal systems and investor protection environments. Specifically, earnings quality is greater as investor protection becomes stronger, but only for firms with the well-known international Big 4 auditors. In contrast, earnings quality of non-Big 4 clients is invariant across investor protection regimes. They further posit that the auditor's enforcement could matter more than the uniform accounting and auditing standards in influencing the accounting quality around the world.

Francis et al. (2009) find that companies hire more Big 4 auditors if there is greater information asymmetry, which is the case for FVOEs. Francis et al. (2009) also study the impact of auditor pairs on abnormal working capital accruals. Although the evidence is relatively weak, they find that firms audited by a BB (Big 4&Big 4) pair exhibit the lowest income-increasing abnormal accruals, followed by firms audited by a BS (Big 4&non-Big 4) pair, and firms audited by an SS (non-Big 4&non-Big 4) pair. In sum, the evidence indicates that the complexity of auditor choice in France created by the joint audit requirement plays out in a way consistent with underlying economic incentives from agency costs driving the use of Big 4 auditors and resulting in higher quality financial reporting.

Lobo et al. (2017) focus on auditing goodwill impairment. They test the impact of auditor pair type on audit quality using goodwill impairment over which management discretion is at important level and the auditor's monitoring role critical. They choose Big 4 auditors versus non-Big 4 auditors, as Big 4 auditors are often viewed as more competent than non-Big 4 auditors. Their research sample includes firms from the 250 listed firms comprising the SBF 250 index, and spans the period 2006–2009. Because of their distinct nature, they delete 34 financial firms because they are required to follow industry-specific impairment rules and disclosures and 143 firm-year observations with SS (non-Big 4&non-Big 4) pairs as they focus on the

comparison of BB (Big 4&Big 4) and BS (Big 4&non-Big 4) pairs. They report that firms audited by a BS auditor pair are more likely to book an impairment and book a larger impairment than firms audited by a BB auditor pair when low-performance indicators suggest a greater likelihood of impairment. Moreover, firms audited by a BB pair reduce impairment disclosures when they book impairments, while firms audited by a BS pair do not, suggesting lower transparency for firms audited by a BB pair. More interestingly, they document better audit quality for the BS auditor pair than the BB auditor pair. One possible explanation is better coordination among the auditors in the BS pair as it is easier to develop hierarchy and the two auditors are not direct competitors. Another possible reason is that the Big 4 auditor, when paired with a non-Big 4 auditor, has stronger incentives to deliver better audit quality because it may face greater litigation exposure and more severe client losses in case of an audit failure (Lobo et al 2017).

Griffin (2014) examine how two types of uncertainty (input *subjectivity* and outcome *imprecision*) addressed by regulators, subjectivity and imprecision, and one reporting choice encouraged by regulators, supplemental footnote disclosure, influence auditors' decisions to require fair value adjustments. As indicated previously input subjectivity is related to Fair Value Hierarchy. Subjectivity affects the reliability of the inputs used to prepare accounting information. In measuring fair values under SFAS No. 157, Level 1 items involve little subjectivity because highly reliable inputs (e.g., active market prices) are available, while Level 2 and Level 3 items involve progressively greater levels of subjectivity because they depend on less reliable inputs (e.g., information from comparable situations or the reporting entity's own assumptions). Griffin (2014) also states that imprecision reflects the degree of variability in possible future outcomes. Wide ranges of possible outcomes suggest more variability than narrow ranges. Though subjectivity and imprecision may tend to covary in practice—that is, more subjective inputs often lead to a more imprecise range of possible outcomes—the two constructs are distinct. He constructed some case studies and provide an evidence about how auditors make decisions related to fair value measurements. He conducts a $2 \times 2 \times 2$ between-participants experiment to examine how subjectivity, imprecision, and supplemental footnote disclosure affect auditors' adjustment decisions in a fair value measurement setting. First, he manipulates subjectivity by providing fair value measurement inputs at two levels prescribed by SFAS No. 157: Level 2 (less subjective) and Level 3 (more subjective). Second, he manipulates imprecision by providing participants with a narrow (precise) range or with a wide (imprecise) range of possible misstatement. Finally, he manipulates footnote disclosure by including or excluding supplemental fair value information from the client-prepared financial statements. By doing these manipulations, he measures auditors' adjustment decisions using two dependent variables: (1) the auditor's assessed likelihood of requiring a client to adjust the financial statements, and (2) the dollar amount of the adjustment. He finds that auditors are most likely to require clients to adjust fair value estimates when subjectivity and imprecision are both high. However, this likelihood diminishes when clients supplement recognized fair values with additional disclosure. Thus, consistent with moral licensing, he finds that auditors tolerate greater potential misstatement in the financial statements when clients provide disclosure, suggesting that the SEC's preference for supplemental disclosure may have the unintended consequence of affecting fair values recognized in the body of the financial statements. The other result demonstrates that auditors determine adjustment size by comparing recorded fair value to the nearest bound, rather than the midpoint, of the auditors' own range estimate, consistent with strict application of auditing standards.

Similarly, Griffith et al. (2014) provide evidence that auditors tend to over-rely on fair value assumptions provided by management, and do not adequately consider factors (possibly inappropriately) excluded from management's estimation process. They argue that auditors typically choose to audit management's model rather than using another method to audit the estimate. Using step-by-step audit programs, they approach their task as though it were a series of verification tasks—finding evidence to support each element of an estimate separately and then moving on to the next element. They propose that these features cause auditors to approach the audit of estimates in a mindset that encourages efficient completion of a verification task rather than one that encourages critical thinking and consideration of a broad set of evidence, which decreases audit quality. Within this regard, they conduct an experiment in which they assign 94 senior-level auditors from three Big 4 firms to one of three mindset conditions (deliberative, implemental, or control) and ask them to audit a client's step-one analysis of a goodwill impairment test. In their case, the client concluded that the calculated fair value of its business unit exceeds book value, and, thus, no goodwill impairment has occurred. However, the case contains seeded errors and inconsistencies among certain assumptions that imply the stepone analysis is biased and overstates the fair value. Consequently, goodwill is likely impaired. Thus, they expect that auditors in a deliberative mindset will be more critical of the client's fair value analysis than auditors in other conditions because they will be more likely to identify the

seeded issues and use the contradictory information in making their judgments. Results obtained are like these: Auditors in deliberative mindset condition assess the client's biased fair value as less reasonable than do auditors in the control and implemental mindset conditions. Auditors in the deliberative mindset condition are also more likely to choose a next action step that reflects more urgent concern that the fair value is unreasonable. Their broader focus of attention and recognition of incidentally presented information meant they were more likely to identify and incorporate seeded errors and inconsistencies into their analysis, and they were more likely to impartially evaluate the discount rate. Auditors in a deliberative mindset are not just conservative but also more discriminating. Finally, deliberative mindset condition auditors' explanations for their decisions are more likely to include the seeded issues and more valid issues with the estimate, generally, than are those of other auditors.

Bepari and Mollik (2015) examine the effect of audit quality on firms' compliance with IFRS for goodwill impairment testing and disclosure. Firms with reported goodwill in their balance sheet in any year from 2006 to 2009 have been included in the final analysis and a total of 911 firm-year-observations over 17 industrial sectors have been analysed. Specifically, the differences in the audit quality among BB audit pairs have been examined in the context of the enforcement of IFRS for goodwill impairment testing. Results show that there are statistically significant differences among the clients of Big-4 auditors and between the clients of BB auditors in their compliance with IFRS for goodwill impairment testing. Big-4 auditors enforce higher compliance than non-Big-4 auditors implies that, companies are able to signal the market of their transparent financial reporting and of their higher compliance levels by appointing a Big-4 auditor. To ensure the best possible compliance and transparent financial reporting, other institutional mechanisms, such as expert AC (audit committee) member, could be put in place along with quality auditing.

2.2 Literature Review on Auditing Fair Value Measurements and Audit Fees

In addition to research about FVOEs and audit quality, there is also a number of studies that focus on association between FVOEs and audit fees. Actually, there is a considerable literature on audit fees (or in other words, audit pricing), with Jensen and Meckling (1976) among the earliest to provide theoretical and empirical evidence on audit fees as one of the agency costs arising from a contractual arrangement between the owners (principal) and the management (agent) of a firm; that is, audit fees represent monitoring (bonding) costs. Also, through the literature review about audit fees conducted by Hay et al. (2006), it is asserted that, in a competitive audit market, determinants affecting audit fees may be broadly classified as client attributes, auditor attributes, and characteristics specific to the audit engagement. However, I searched the literature on audit fees from the perspective of fair value measurement, in broader terms fair value accounting. In terms of fair value accounting, it will be true that literature about FVOEs and audit fees is also concerning the literature about changes in audit fees after implementing International Financial Reporting Standards (IFRS) as IFRS requires fair value at a greater extent.

The issue of IFRS difficulty and complexity has become a major concern among the preparers of financial statements, directors and also auditors. Since the new IFRS drive increases the disclosure, it demands for a higher effort and time to extensively verify and provide assurance concerning the audited financial statements (Hoogendoorn 2006). Moreover, as IFRS depends on fair value accounting (Lhaopadchan 2010) to a large extent, the complexity and challenge grows unceasingly when the management has to exercise greater judgment in the IFRS environment. Due to a lack of clear accounting guidelines under the principle-based accounting standards (fair value accounting), accountants are forced to put forth a considerable amount of time and effort to analyze business transactions to make the most appropriate judgments and to ensure compliance (Marden and Brackney, 2009). Besides, audit hours are expected to increase due to a lack of experience in auditing principle-based financial statements. In an effort to enhance audit quality, IFRS-related education and training need to be provided on a regular basis. Both audit procedures and information systems may also need to be modified to accommodate the new accounting standards. More investments by audit firms become imperative. Thus these efforts are likely to increase audit fees (Lin and Yen 2016). The choice of fair values could increase audit fees and/or auditors' efforts since fair value accounting increases the difficulty of verifiability and complexity (Ettredge et al., 2013). Even observed prices may introduce uncertainty to auditors, especially in distressed markets (Bratten et al., 2013).

To examine how IFRS adoption affects the audit fee, literature points out that IFRS adoption has two audit-related effects. First, the adoption of IFRS may improve financial reporting quality, that is, reduce financial misstatements conditional on the reporting regime, thereby reducing audit risks. Proponents of IFRS argue

that, compared with former local GAAP in most countries, IFRS is more principles-based, emphasizing a "true and fair view" in both letter and nature, and incorporating into financial statements the effects of economic events on firm performance in a timelier manner (Dumontier and Raffournier 1998; Alexander and Archer 2000, 2003; Hung and Subramanyam 2007). Also, Barth et al. (2008) argue that IFRS provides more practical guidelines to limit opportunistic management discretion in determining accounting amounts, thus fewer misstatements or better compliance judgment. In summary, comprehensiveness and quality of IFRS guidelines have positive effects on reporting quality, as they are expected to improve management judgements and reduce judgement errors in line with fair presentation principle. This arguments support the idea that fair value measurements affect audit fees in a positive way by reducing the fees.

Second, IFRS adoption increases complexity of audit process. Since IFRS is comprehensive, fair-value oriented, and principles based, using IFRS generally requires accountants and auditors to make more complex estimates and to use greater Professional judgement (KPMG 2010, Deloitte 2012). Maksymov et al. (2014) find that budgeted audit hours are greatest when fair value audit procedures are framed in negative terms (e.g., determine whether a fair value is *not* appropriate) and their verifiability is low, suggesting conservative response to fair values' uncertainty in terms of auditor effort. Their result is consistent with archival studies indicating that auditors charge higher fees when highly uncertain Level 3 fair value items are present (e.g., Ettredge et al. 2011). These studies collectively point to the difficulty and perceived risk of evaluating high-uncertainty fair value estimates, Total Effect is determined by which of the above two is more dominant.

Jermakowicz and Tomaszewski (2006) conducted an explanatory study to gain some insight into the process of implementing IFRS by EU-listed companies from the perspective of companies that have already introduced these standards or are in the process of implementing them. They conducted through a questionnaire sent to 410 companies listed in European financial markets and completed by only 112 respondents (16 belong to France) that the process of IFRS adoption is costly, complex and expensive. The standards that were listed as the most complex include two standards on financial instruments, IAS 32 (Financial Instruments: Presentation) and IAS 39 (Financial Instruments: Recognition and Measurement) which require using fair value accounting at a greater extent.

Griffin et al. (2009) also pointed out that even though some IFRS are relatively similar to the local standards, they are actually more detailed and require more disclosure, which entails more audit effort and in turns increases audit fees. Griffin et al. (2009) exercised data for six (6) years from 2002 to 2007 in order to examine any significant effects of the three (3) different policies: (i) spillover effect of SOX 2002 in the US, (ii) Corporate Law Economic Reform Program Act of 2004 (CLERP 9) in Australia or the local New Zealand Stock Exchange (NSX) governance rules 2004, and (iii) transition to New Zealand IFRS 2007 with early adoption effective 1 January 2005 to the New Zealand audit and non-audit fees. Results show that audit fees did not change in 2002-2003 but increased significantly from 2004-2007. The results provide evidence that the significant increase in audit fees is associated with the year prior to IFRS adoption, the adoption year and in the following IFRS adoption years.

Schelleman and Knechel (2010) investigates how audit risk associated with increased levels of accruals that might be indicative of earnings management affects the pricing and production of audit services. They examine the simultaneous effect of increased levels of accruals on audit effort, labor mix, fees, and profit margins. The data for the study was obtained using a survey conducted in cooperation with a large international accounting firm in The Netherlands. The survey used to collect their data was constructed based on an extensive review of prior audit fee and production studies in cooperation with the technical department of the audit firm. Each of the 25 offices of the firm received a request to supply data on 25 audit engagements—18 offices agreed to participate, resulting in a total of 157 responses _a response rate of 35 percent_ involving audits related to the fiscal year 1997. Of these, finally, 119 responses are used in the analyses. Their primary results reveal that signed short-term accruals are positively associated with audit fees as well as total audit effort. These results indicate that higher levels of short-term accruals are associated with an increasing amount of work done in an audit as measured by the hours of the professional staff. Additional analysis revealed that the increased auditor effort consists primarily of additional supervisor and assistant time (possibly for substantive testing) and consultations with experts outside the audit team. To sum it up, they present direct evidence that auditors increase their effort and fee levels in response to the level of short-term accruals and indirect evidence that they may do so even if they cannot pass on the full cost to the auditee.

Yaacob and Ahmad (2012) analyzed observations from the companies listed on the board of Bursa Malaysia, of which, 2,210 observations were from the main board and 840 observations were from the second board, between 2004-2008. They are motivated from many assertions that IFRS is a complex standard that requires more audit effort and questioned whether convergence to IFRS increased audit fees or not. The results of the fixed effects model support the hypothesis that there is a significant increase in audit fees after the IFRS adoption.

Another study conducted by Kim et al. (2012) examines the impact of IFRS adoption on audit fees, too. They developed an analytical model in which audit task complexity, financial reporting quality, and legal regime play important roles in determining audit fees. Then, they run analyses to observe the association between IFRS convergence and audit fees. To further understand the audit fee effect of IFRS adoption, they also test the model's predictions of how the relation between IFRS adoption and audit fees varies with a country's institutional factors. To see these effects, they consider three types of institutional factors: (1) the increase in audit complexity arising from IFRS adoption, (2) the change in financial reporting quality brought about by IFRS adoption, and (3) the strength of a country's legal regime. To test their research hypotheses, they obtain from Worldscope a sample of 29,206 firm-years from 14 EU countries the period 2004-2008. Analysis suggests that IFRS adoption has opposite effects on audit fees. On the one hand, the increase in audit task complexity arising IFRS adoption increases audit fees, but on the other hand, the improvement in financial quality leads to a decrease in audit fees. Results show that mandatory IFRS leads to an increase in audit fees, which suggests that the increase in audit task complexity driving force behind the IFRS-related audit fee increase. Besides, they find that the IFRS-related fee premium increases with the extent of accounting differences between a country's former GAAP and IFRS, and decreases with improvements in financial reporting quality brought IFRS adoption. They also find some evidence that the IFRS-related audit fee premium decreases the strength of a country's legal regime.

De George et al. (2012) employed a comprehensive sample of all publicly traded companies on the Australian Stock Exchange for the period 2002–2006, they estimate a 23 percent increase in the average level of audit fees in the year of IFRS adoption. Furthermore, they report an abnormal IFRS-related increase in audit costs of 8 percent (i.e., beyond normal yearly fee increases). Analysis also suggests a fixed component in the costs associated with IFRS adoption being borne by the smallest firms. Consequently, they find that small firms exhibit disproportionately larger increases in audit fees around the adoption of IFRS relative to large firms. They also conducted a research survey among professional auditors at a Big 4 accounting firm. Results shows that auditors believe that certain aspects of the new IFRS reporting requirements (i.e., share-based incentive payments, financial instruments including hedge accounting, and impairment of goodwill and other intangible balances) require greater auditor effort and expertise to ensure adequate compliance. Constructing a firm-specific score of IFRS exposure based on survey results, they confirm that the firms with the greatest exposure to these standards incur greater increases in audit fees in the year of adoption.

Goncharov et al. (2014) analyze real estate firms domiciled in Europe during 2001–2008, which provides several benefits. They choose real estate firms as European real estate firms exhibit substantial variation in the reporting of fair values for their property assets, which they benefited in their analyses. Prior to adoption of IFRS by the European Union, effective 2005, domestic standards varied in the reporting requirements for real estate assets on the balance sheet: either at fair value, or at depreciated cost subject to impairment. Under IFRS, property asset fair values must be reported, either through recognition on the balance sheet or through footnote disclosure. Third, this setting allows examination of four specific fair value attributes: the proportion of a firm's assets reported at fair value, the difficulty of fair value estimation, whether reported fair values are recognized or disclosed, and the effect of using an alternative external appraiser to derive the fair value estimates. They test the research hypotheses that whether audit fees differ for firms applying depreciated cost versus fair value reporting to their primary operating assets. Also their second hypothesis tests that whether impairments lead to higher audit fees for firms reporting their primary operating assets under depreciated cost. According to the empirical findings, audit fees are significantly lower for firms reporting property assets at fair value relative to those reporting property assets at depreciated cost. They also reported that (via difference-in-differences research design) firms previously reporting property assets at depreciated cost under domestic standards exhibit greater declines in audit fees once required to report property fair values upon IFRS adoption relative to firms already reporting properties at fair value under domestic standards. They further conducted some interviews with real estate audit partners, which suggest that specific reporting requirements arising only within depreciated

cost contexts (particularly potential and actual impairments as well as component depreciation) are likely a significant source of higher audit effort for these firms. Consistent with these expectations, they find that impairments reported by depreciated cost firms are a significant driver of observed higher average fees. Finally they asserted that audit fees are decreasing in firms' exposure to fair values and increasing both in the complexity of measuring fair value and if fair values are recognized (versus only disclosed in the footnotes).

Ettredge et al. (2014) run analyses to see whether proportions of fair-valued assets held by banks are positively associated with audit fees. Similar to audit fees for clients in other industries, audit fees for banks should be positively associated with audit costs and with expected future losses resulting from the auditor's involvement with the current period's financial statements (Ettredge et al. 2014). They estimate audit fee models using 1,022 banking firm-year observations from years 2008 to 2011 in the USA context. Consistent with research expectations, Ettredge et al. (2014) find that audit fees are positively associated with the proportions of banks' fair-valued assets. Consistent with the argument that audit risk and effort increase with the extent of fair-valued assets, the researchers provide evidence that auditors charge more for higher proportions of assets held in the form of fair-valued assets. Besides, they find that the positive association between logged audit fees and the proportions of total assets that are fair-valued using Level 3 inputs is greater than its positive association with the proportions of total assets that are fair-valued using Level 1 or Level 2 inputs.

Yao et al. (2015) investigate the association between asset revaluations of non-current assets and audit fees, using a sample of ASX 300 companies from the years 2003–2007 in an Australian context. IFRS adopted in Australia from 2005 allow a choice between the use of fair value and historical cost for PPE and investment property and, if an active market exists, for intangibles. Within this respect, they investigate the association between asset revaluations of non-current assets and audit fees. They find that there is a significant and positive association between fair value exposure and audit fees. In addition, companies employing an independent appraiser to estimate the asset values incur significantly lower audit fees as compared to those companies using internal directors' valuations. Further analysis run by the researchers reveal that companies revaluing non-current assets upwards incurred higher audit fees. Also, companies that undertook upward revaluations on a yearly basis paid higher audit fees than those that undertook upward revaluations every a few years (e.g. every 3 years). They also find evidence that corporate governance mechanisms have a moderating effect on audit fees in the course of asset revaluations.

Lin and Yen (2016) conduct the analysis by examining audit fees from 4,129 sample observations that issued A-shares in the Shanghai and Shenzhen stock exchanges from 2005 to 2008. The authors empirically test the association between audit premiums and auditors' and auditees' IFRS experience. They generally conclude that audit fees increased following the adoption of IFRS. They find that audit firms with IFRS experience prior to 2007 charged an incremental audit premium in the initial years of IFRS adoption. Contrarily, audit clients with previous IFRS experience paid lower incremental audit premiums in the initial years of IFRS adoption. Results also assert that auditors' pricing decisions were affected by the degree of changes in financial reporting complexity due to the adoption of new accounting standards. Generally, when the adoption of the Chinese IFRS introduced a high degree of changes in financial reporting complexity, the adjustment in audit fees was more significant.

Loukil (2016) investigates the impact of the adoption of the accounting standards in France context in 2005 on audit fees. The sample used in this paper is a panel of 69 French firms over a period of six years (2002–2007) which is gathered from the SBF250 index. The fixed effects regression results show that the transition to IFRS is associated with a significant increase in the amount of audit fees. This significant rise in audit fees occurred in 2004; it also was continued in 2005 but was not found during the post-IFRS period.

Jung et al. (2016) examine whether the association between abnormal audit fees and audit quality in the Korean audit market differs in the pre-IFRS period (2007–2010) and post-IFRS period (2011–2013) for Korean listed firms. The results show that abnormally high audit fees are negatively associated with audit quality, in accordance with economic bonding theory. However, they find no significant difference between abnormally high audit fees and audit quality in the pre and post IFRS period. Their results also show the fact that adoption of the IFRS may facilitate earnings management in some firms by providing greater opportunity for use of discretionary accruals in collusion with auditors.

Chen and Zolotoy (2017) focus on fair value accounting on audit fees from a very specific fair value measurement: pension plans (contribution plans and defined benefit plans). They also linked using pension plans with companies' earnings management practices and questioned whether increased audit effort mitigates manipulations in complex accounting estimates. Defined benefit (DB) pension accounting is far more complicated than defined contribution (DC) pension accounting and estimates in DB pension accounting involve considerable discretion of and prediction by managers (Kieso et al., 2010). It is straight that pension accounting provides an interesting setting to examine which factors influence the adjustment of auditors' effort when confronted with complex accounting estimates. To test their prediction, they utilize a comprehensive sample of public firms in the U.S. from 2004 to 2012. On average, pension assets represent 11.6% of the book value of assets for companies in our sample that have DB pension plans. They report that that auditors charge higher audit fees for auditing financial statements of clients with DB pension plans, as compared to those without DB pension plans. The documented effect of DB pension plans on audit fees is more pronounced when client earnings are more sensitive to DB pension estimates, or when manager compensation induces more risk taking. Also they find some evidence that the additional audit fees charged for clients sponsoring DB pension plans are negatively associated with the extent of manipulation in the assumed return rates—an important DB pension accounting estimate. Further, as they expected, their findings suggest that auditors consider clients' motivations to manipulate pension accounting in adjusting their effort and that increased audit effort mitigates pension accounting manipulations.

Another specific fair value measurement is tackled with Ferromosca et al. (2017) from the external audit perspective. Ferromosca et al. (2017) investigate whether and how salient external auditor characteristics (size, audit fees, non-audit fees, tenure) impact on the reported goodwill write-off. They use a sample of US firms applying SFAS 142 (Goodwill and Other Intangible Assets). Recently, accounting scholars have argued that the complex nature of the goodwill impairment makes such an estimate unverifiable ex-post and hardly auditable (Ramanna and Watts 2012). Although auditors are aware of these ambiguities, they have confidence in the auditability of fair value estimates and believe that through audit procedures can be put in place to ensure that the goodwill write-off is sound and coheres with the firm's underlying economics (Ferromosca et al. 2017). They find that the auditors' size, proxied by being part of the Big-4, constrains goodwill write-off understatements but does not affect goodwill write-off overstatements. This finding supports the argument that Big-4 auditors are more lenient with conservative estimates, which reduce their reputation and litigation costs. Their study also provides evidence that auditors overall charge higher audit fees to clients underestimating the goodwill write-offs because of the fact that underestimated write-offs produce inflated goodwill values with higher probabilities of future late large write-offs. Such late adjustments to the goodwill value may cause damage to the auditors' reputations and trigger litigation. Finally they conclude that auditors are cautious about optimistic underestimations of the goodwill write-offs and compensate for the greater audit risk by charging higher audit fees. By contrast, the findings show that goodwill write-off overstatements are associated with lower audit fees.

2.3 Literature Review on Other Challenges and Constraints on Auditing Fair Value Measurements

Although the most part of the literature focus on effect auditing fair value measurement on audit quality and audit fees, there is a number of studies that discuss auditing FVOEs from the behavioral view. Earley et. al. (2008) discuss the first-mover advantage in audit settings. Here, management is a "first-mover" in that the auditee prepares reported fair values (i.e., moves first)—and second, the auditor examines the reasonableness of the estimates. It is very obvious that management's advantage in preparing reported values prior to the audit could disproportionately affect the audit quality of FVOEs, because management could exploit this first-mover advantage more easily when there is greater estimation uncertainty (Earley et al. 2007/8). McDaniel and Kinney (1995) also reported that first-mover advantage that management asserts negatively affects auditor judgement quality.

The other issue discussed in the literature is using external valuation specialists in auditing fair value measurements and other estimates. The use of external valuation specialists could have positive or negative effects on financial reporting and audit quality. Pricing services, in particular, provide valuation expertise and data for a broad array of financial instruments and indices and have been widely used in fair value measurement (Bratten et al. 2013). King (2006) remarks the high correlation between auditees' and specialists' estimates and argues that auditors' retention of additional "independent" specialists results in an unnecessary cost as these specialists (rented by auditees) are already independent. Deloitte (2010) finds that 73 percent of asset managers surveyed believed that pricing services were more reliable than brokerage

services. In the same survey, nearly 60 percent of companies had separate fairvaluation committees, all of which utilized pricing vendors. The IAASB (2011, 20) also notes that pricing services may have the benefit of a formalized process for challenging valuation. Consistent with the notion that use of pricing services leads to enhanced reporting, 97 percent of asset managers in Deloitte's (2010) survey claimed to have challenged a pricing vendor's valuation, indicating that firms do not overly rely on pricing services (Bratten et al. 2013). Regulators, however, have expressed concern about preparers' and auditors' potential overreliance on specialists. For example, SEC staffer Jason Plourde urged management "to consider the extent of its understanding of the pricing service's valuation techniques, assumptions and other inputs" when complying with GAAP (SEC 2011). In the extreme, the auditor's and auditee's use of the same specialist or pricing service impairs the auditor's independence (PCAOB 2011b).

Also, there are some studies on auditing FVOEs and auditor-specific characteristics. These studies largely focus on auditor-specific characteristics (knowledge and expertise, lack of professional skepticism, auditing standard ambiguity, estimation uncertainty) that could affect the auditor's ability to effectively audit FVOEs (Bratten et al. 2013). The PCAOB (2009) highlights the importance of auditor knowledge and expertise in auditing high-risk areas and the IAASB (2011) reminds auditors that a key consideration in audits of complex financial instruments is the competence and capability of all audit team members. Despite this fact and warning by IAASB, Griffith et al. (2012) report that the testing of fair values is often conducted by staff inexperienced in valuations and, despite existing audit engagement supervision requirements, audit partners and managers (i.e., those required to supervise) report insufficient knowledge and experience with accounting, auditing, and particularly valuation. Besides, for professional skepticism, AU Section 230, Due Professional Care in the Performance of Work, defines professional skepticism as "an attitude that includes a questioning mind and a critical assessment of audit evidence" (AICPA 1972, .07). Although "application of professional skepticism is required in all circumstances" (IAASB 2011, 72), exercising professional skepticism is especially important when auditing FVOEs, given that amounts are uncertain and supporting evidence is not concrete (PCAOB 2009; IAASB 2011). Martin et al. (2006) suggest that the wording of authoritative standards may contribute to a lack of professional skepticism. For example, AU Section 332.35, Auditing Derivative Instruments, Hedging Activities, and Investment in Securities, states "the auditor should obtain evidence supporting management's assertions about the fair value of derivatives and securities measured or disclosed at fair value" (AICPA 2000; emphasis added). Such directional guidance can lead to confirms management's estimates—an action indicative of reduced skepticism—instead of searching for relevant information that might disconfirm management's estimates—an action indicative of enhanced skepticism. Nelson (2009) provides a recursive model of Professional skepticism. Nelson's (2009) model links auditor knowledge and skepticism to the auditor's judgment and decision. The decision outcome, along with feedback, becomes part of an auditor's experience and, thus, knowledge for future judgments. For an auditor to exercise Professional skepticism, the auditor must understand the relation between audit evidence and audit risk, possess knowledge of the frequency of errors/nonerrors, and be able to recognize patterns indicative of higher risk (Nelson 2009).

Auditors often fail to develop independent expectations (Griffith et al. 2012), on the other hand, auditing standards suggest that auditors develop independent FVOEs. Research shows that such ambiguity in auditing standards impacts auditor search strategies and judgments (Bratten et al. 2013). Hackenbrack and Nelson (1996) find that auditors use auditing standard ambiguity to justify more aggressive reporting decisions. In such cases, auditors tend to require more conservative reporting methods of auditees. Current auditing standards are ambiguous as they provide testing options, but also prompt auditors to obtain evidence that confirms management's estimates (e.g., AU 332). As previously discussed, such guidance can reduce auditor skepticism and trigger motivated reasoning¹ (Martin et al. 2006). Johnstone et al. (2002) find that auditors who have less knowledge about an accounting issue and inherit an accounting approach to address the issue are less likely to generate alternatives.

Numerous other factors (e.g., person-task interactions) may affect the auditor's ability to effectively audit FVOEs. Research has shown that management's estimates or prior period balances bias auditors' judgments and decisions (McDaniel and Kinney 1995; Earley 2002; Jenkins and Haynes 2003) and results in some psychological heuristics and biases, such as anchoring and adjustment (e.g., Kinney and Uecker 1982), primacy (e.g., Anderson and Maletta 1999), and the curse of knowledge (Earley 2002; Kennedy 1995). Unfortunately, auditors are more likely depend on these heuristics when the task is complex. Griffith et al. (2012) report that auditors have difficulty overcoming initial beliefs (it doesn't matter if they are self-

¹ Motivated reasoning refers to individuals expending more effort to confirm (versus disconfirm) a belief (Bamber et al. 1997).

or management generated). They suggest that when auditors become well experienced in management's model before considering alternatives, they are less likely to generate independent estimates (Griffith et al. 2012).

3. CONCLUSION

As the previous research shows, it is obvious that there are many fruitful areas for research on the intersection of fair values, issues on audit (judgments, decisions, fees, etc.) and accounting information (both how it is reported and presented). Over time, as globalization revised most of the business transactions, complexity and estimates become more uncertain, as a result, nature of audit assurance provided to users on estimates containing measurement uncertainty has changed too.

Although both accounting and auditing standards increased use of fair value measurements for financial instruments and provide guidance to both financial statement preparers, users and auditors, there are still lots of unknowns, contradictions and challenges on how fair value measurements affect audit process, audit quality and audit fees. Within this point, this study aims to inform those concerned about literature on auditing fair value measurements and other complex estimates.

Starting from this research motivation, I splitted the literature into three parts (association between FVOEs and audit quality and audit fees) and made a detailed literature review. Research shows that auditing FVOEs is very hot topic and needs to be enlightened. As the trend toward recognition of fair values is increased among financial statement preparers, standard-setters (both accounting auditing) and practitioners, it also poses a great opportunity for audit researchers. Besides, especially there is almost no study constructed in emerging markets (including Turkey) so I believe this literature review can shed some light on future research.

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