Effect of Audit Quality on Earnings Quality Given Firm`s Operational Characteristics: An Empirical Study on Companies Listed on the Egyptian Stock Exchange

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Abstract

This study examined the interrelation between audit quality and earnings quality given different operational characteristics. I investigate the impact of certain audit quality proxies on earnings quality indicators for a sample of 74 listed Egyptian firms during the period from 2011-2016. Research hypotheses are premised on the widely held belief that auditing quality is a value driver for financial reporting quality, and thus, predict a positive significant association between audit quality proxies and earnings quality indicators.

Two measures were selected to assess audit quality; audit firm size and market-to-book ratio MTB. For earnings quality, three accounting-based measures were selected; persistence, predictability, and smoothness. The research predicts a positive significant association between audit quality indicators and earnings quality proxies.

The results reveal that audit firm size is positively and significantly associated with earnings persistence. This is not true for predictability and smoothness. Moreover, evidence does not lend credence to the hypothesis predicting a positive association between MTB and earnings quality proxies. Sensitivity and additional analyses, further, support results of fundamental analysis.

Keywords: Audit quality, earnings quality, audit firm size, MTB, Earnings persistence, earnings predictability, earnings smoothness.

تأثير جودة المراجعة على جودة الأرباح في ضوء الخصائص التشغيلية للشركة: دراسة تطبيقية على الشركات المقيدة بالبورصة المصرية

ملخص البحث

يتناول البحث دراسة العلاقة بين جودة المراجعة وجودة الأرباح في ظل اختلاف الخصائص التشغيلية لعينة مكونة من ٧٤ شركة من الشركات المقيدة بالبورصة المصرية خلال الفترة من ٢٠١١ إلى ٢٠١٦. وعلى اعتبار أن المراجعة تمثل قيمة مضافة للمعلومات المحاسبية المتضمنة في التقارير المالية وتعزز خاصيتي الصدق وإمكانية الاعتماد عليها أو الوثوق فيها، فان الفرض الرئيسي للبحث يتنبؤ بوجود علاقة جوهرية موجبة بين مؤشرات جودة المراجعة ومقاييس جودة الأرباح. وقد تم قياس جودة المراجعة من خلال حجم منشأة المراجعة و نسبة القيمة السوقية إلى القيمة الدفترية للملكية MTB. أما جودة الأرباح، فقد تم قياسها بمؤشرات الاستمرارية، القابلية للتنبؤ، وتمهيد الأرباح.

وقد توصل البحث إلى قبول فرض وجود علاقة جوهرية موجبة بين حجم منشأة المراجعة و استمرارية الأرباح، ورفض فرضي وجود علاقة جوهرية موجبة بين حجم منشأة المراجعة و القابلية للتنبؤ، و تمهيد الأرباح. أما بالنسبة للقيمة السوقية إلى القيمة الدفترية للملكية، فقد استبعدت النتائج وجود علاقة جوهرية موجبة بينها و بين مقاييس جودة الأرباح. وقد أكد تحليل الحساسية و التحليل الاضافي النتائج السابقة.

الكلمات المفتاحية: جودة المراجعة، جودة الأرباح، حجم منشأة المراجعة، نسبة القيمة السوقية إلى القيمة الدفترية للملكية، استمرارية الأرباح، القابلية للتنبؤ، تمهيد الأرباح.

I. Introduction

Reliability and credibility of financial information have been perceived one of the main factors contributing to financial markets' stability and growth. Auditing is an integral part of the financial reporting process, where it represents a value added for the credibility and reliability of financial statements through reducing agency costs. Financial statements are believed to be a joint product of management representations and the audit process. Theoretical arguments and research findings (e.g., Balsam et al. 2003, Ghosh and Moon 2005, Li and Lin 2005, and others) suggest that auditing is a determinant of earnings quality because of its role in mitigating intentional misstatements (fraud) and unintentional misstatements (errors).

The interaction between audit quality and earnings quality remains a popular topic of debate and discussion among researchers and analysts. The widely accepted definition of audit quality is the probability that an auditor will both detect and report financial statement misstatements. As argued by DeAngelo (1981), the discovery of the misstatement reflects auditors' competence, while the reporting of the misstatement counts on auditors' independence. Literature addressing audit quality has focused on either factors contributing to audit quality or consequences of audit quality. Numerous studies (such as Becker et al. 1998, Francis and Yu 2009, Choi et al. 2010, Siregar et al. 2012, and others) investigated factors which contribute to higher audit quality, including audit firm size, industry specialization of auditor, and audit tenure. Others studies (such as Krishnan 2003, Dunn and Mayhew 2004, Li 2009, Garcia et al. 2012, Lenard and Yu 2012, and others) trace the impact of audit quality proxies on aspects such as earnings management, value relevance, cost of capital, and investment decisions.

Undeniable is the fact that auditing is valuable in controlling managerial discretion, its value is expected to vary with auditor-specific characteristics. It is widely supported that size of audit firm influences audit quality. Big 4 audit firms possess more resources and expertise to detect errors and misstatements.

Also, they are more motivated to report frauds to protect their reputation due to their large client base. That is, Big 4 audit firms are not under pressure to accept fraudulent practices in order to retain or satisfy their clients. This argument has been analyzed and empirically supported by Krishnan 2003, Lin and Hwang 2010, Zgarni et al. 2012, Yasar 2013, and others.

Auditors' industry specialization is considered an important determinant of audit quality. This refers to industry-specific knowledge accumulated from serving clients in the same industry. Krishnan (2003) and Dunn and Mayhew (2004) propose that specialists auditors invest heavily in technologies, physical facilities, personnel and organizational control systems that enable them to detect irregularities and misrepresentations more easily.

Another key determinant of audit quality is audit tenure or auditor rotation. On the one hand, it is suggested that audit rotation positively affect audit quality, where it retains auditor independence that could be adversely affected by lengthy auditor-client relationships (Gavious 2007). Audit rotation prevents the so called "opinion shopping", and lead to more effective and objective audit (Crabtree et al. 2006). On the other hand, auditor rotation may negatively affect audit quality, where it increases audit start-up costs, and makes new auditors rely more heavily on management estimates and representation (Myers et al. 2003).

Earnings quality is perceived to be a direct consequence of audit quality. In fact, earnings quality is a multi-dimensional concept that has attracted much attention of constituents in the financial community. In the literature review provided by Dechow et al. (2010), earnings quality studies are classified into one of two groups according to whether it provides evidence on the determinants or the consequences of the earnings quality proxy it examines. The determinants papers (e.g., Hodge 2003, Schipper 2005, Richardson et al. 2005, Dichev et al. 2013, and others) investigate characteristics of a firm that cause an earnings outcome, the earnings quality proxy is the dependent variable. These include: (1) Firm characteristics, including firm performance, debt,

growth and investment, and size. (2) Financial reporting practices, accounting methods, financial statements classification and interim reporting, principles-based versus rules-based standards. (3) Governance and controls. (4) Auditors. (5) Capital market incentives, including raising capital and earnings-based targets. (6) External factors. The consequences papers (Beneish and Vargus 2002, Chan et al. 2004, Francis et al. 2004, and others) investigate the effect of earnings quality on an outcome, the earnings quality proxy is the independent variable in the analysis. These include: litigation propensity, audit opinions, market valuations, real activities including disclosure, executive compensation, labor market outcomes, firm's cost of equity capital, firm's cost of debt, and analysts forecast accuracy.

It is extensively assumed and documented (e.g., Balsam et al. 2003, Ghosh and Moon 2005, and others) that earnings quality is positively linked to audit quality. This linkage is based on the argument that high quality auditors, as a result of more effective monitoring, are more likely to detect questionable accounting practices and misrepresentation by management than low quality auditors. Therefore, earnings quality may be viewed as a joint product of managerial and auditors' efforts.

The last 15 years have witnessed several regulatory mechanisms in the Egyptian context in order to enhance transparency and credibility of financial reporting. The Egyptian Code of Corporate Governance was introduced in October 2005 by the Egyptian Institute of Directors. This code was reformed and adjusted in 2011 by the Egyptian Financial Supervisory Authority, created by Law 10/2009. It is expected that such regulation, among others, would improve earnings quality of listed companies and enhance auditors' incentives.

This paper belongs to a wide domain of studies devoted to investigate the impact of audit quality metrics on earnings quality indicators. Motivated by the well-established literature documenting the interrelation between audit and earnings quality, this study aims to contribute to the understanding of this issue by studying the impact of certain audit quality proxies on selected earn-

ings quality proxies for a sample of 444 firm-year observations from listed Egyptian companies over the period from 2011 to 2016. This period seems critical since it directly follows the reform of the Egyptian code of corporate governance in 2011.

Literature provided various indicators for audit and earnings quality. Two measures were selected to assess audit quality; audit firm size (as input-based actual measure), and market-to-book MTB (as output-based perceived measure). For earnings quality, three accounting-based measures were selected; persistence, predictability, and smoothness. The research predicts a positive significant association between audit quality indicators and earnings quality proxies. The firm's specific variables, denoting firm's operational characteristics, assumed to moderate such association are chosen to be firm size, level of firm leverage, incidence of loss, and industrial sector to which the firm belongs.

The results reveal that audit firm size is positively and significantly associated with earnings persistence. This is not true for predictability and smoothness. Moreover, evidence does not lend credence to the hypothesis predicting a positive association between MTB and earnings quality proxies.

The paper contributes to the literature on the interaction between audit quality and earnings quality through providing evidence from Egyptian context, where auditors' incentives, regulatory mechanisms, and institutional environment are different.

The remainder of the paper is organized as follows: Section II presents literature review and hypotheses development. Section III describes the sample and research design. Empirical results are presented in Section IV. A summary of the findings and concluding remarks appears in Section V.

II. Literature Review and Hypotheses Development

The last two decades have witnessed a growing interest in the topic of corporate governance. This can be justified by changes in the way of governing companies because of globalization, intensive competition, advanced technologies, social and environmental responsibilities and sustainability concerns. Another reason was the failure and financial scandals of major companies all over the world, caused jointly by managers lacking honesty, and auditors lacking independence and integrity. An increasing number of studies call for further research into the determinants of earnings quality in the context of the growing importance of credible and reliable financial information.

Earnings Quality

Accounting literature provides several definitions for earnings quality. Hodge (2003) considers earnings quality as the extent to which reported earnings on the income statement differ from true earnings. Chan et al. (2004) view earnings quality as the degree to which reported earnings reflect operating fundamentals. For Kirschenheiter and Melumad (2005) earnings are of higher quality when they are more informative and closer to the long run value of the firm. From a valuation perspective, Dechow and Schrand (2004) define a high quality earnings number as the one that accurately reflects the company's current operating performance, is a good indicator of the future operating performance, and is a useful summary measure for assessing firm value.

The difficulty to reach a unique definition of earnings quality has resulted in multiplicity of measures that have been used in literature to approach earnings quality. Extant research uses various measures to capture different aspects of earnings quality.

Schipper and Vincent (2003) classify earnings quality constructs as derived from:

(1) The time-series properties of earnings,

(2) The relations among cash, accruals, and income,

(3) The implementation decisions.

Whereas Dechow et al. (2010) organize the earnings quality proxies into three broad categories: (1) Properties of earnings, (2) Investor responsiveness to earnings, or earnings response coefficient studies, and (3) External indicators of earnings misstatements.

Francis et al. (2004) divide earnings attributes into two groups:

1- Accounting-based earnings attributes include persistence, predictability, smoothness, and accrual quality.

2- Market-based earnings attributes include value-relevance, timeliness, and conservatism.

The paper employs the most common attributes of high quality earnings defined in the literature as those that: (1) are persistent and hence the best predictor of future long-run sustainable earnings , (2) better predict future earnings (3) are smooth.

Persistence of earnings is one of the most frequently used measures of earnings quality. Persistence is defined as the extent to which earnings performance persists into the next period. The interest in persistence as an intrinsic characteristic of earnings quality can be traced back to Beaver and Morse (1978), which highlighted the negative effect of earnings' transitory components. In the same stream of thinking, Beaver (1989) suggested, among other possible reasons, that the low return–earnings relationship is attributable to the fact that earnings changes reflect transitory factors that affect the current year's earnings but are not expected to alter the level of future expected earnings. Empirical studies (e.g., Kormendi and Lipe 1987, Easton and Zmijewski 1989, and Collins and Kothari 1989) report a positive association between

estimates of earnings persistence and the response coefficient of the return-earnings regression.

Predictability is the ability of past earnings to predict future cash flows (Barth et al. 2001, and Cohen 2004). Earnings are considered to be of higher quality when they have high predictability. FASB's concepts statement No.2 expresses that information can make a difference to decisions by improving decision makers' ability to predict. Earnings predictability can affect decision making by constructing anticipations about future earnings that are correlated to future cash flows. Thus, stock market performance demonstrates a strong focus on earnings predictability.

Earnings smoothness is the reduction of volatility in reported earnings overtime. More specifically, it is to smooth random fluctuations in the timing of cash payments and receipts, making earnings more informative about performance than cash flows. Some academics and researchers perceive smoothness as a desirable characteristic of earnings indicating its high quality. Levitt (1998) indicates that managers choose to smooth earnings based on their belief that lower variable earnings are preferred by investors. Trueman and Titman (1988) suggest that managers could affect investors' perceptions through earnings smoothness and encourage uninformed investors to enter the market.

Audit Quality

The widely held definition of audit quality is that prescribed by DeAngelo (1981), as market-assessed joint probability that a given auditor will both detect breach in the client's accounting system and report the breach. Defond and Zhang (2014) believe that this characterization understates the benefits of high audit quality, which extends well beyond the simple detection and reporting violations to assuring financial reporting quality.

An important distinction was made by Jackson et al. (2008), where audit quality can be viewed from actual and perceived perspectives. Actual quality shows levels of risk of material misstatements in financial statements that can

be reduced by the auditor. Perceived quality indicates the level of users' confidence in financial statements, and the auditors' effectiveness in reducing material misstatements in financial statements.

The role of auditors is to provide a professional and technical opinion concerning the credibility of information contained in the financial statements. Yet, and as Balsam et al. (2003) argued, the audit process is not directly observable. Thus, audit service is not objectively measurable, and evaluation of audit quality needs to be based on indirect signals. Literature reviewed by Defond and Zhang (2014) evaluates audit quality through output-based measures and input-based measures. Output-based audit quality measures use proxies such as restatements, market-to-book values, accrual quality, and conservatism. While, input-based audit quality measures use proxies such as audit firm size, audit fees, specialization, and tenure.

The paper employs two proxies to infer audit quality; audit firm size as an input-based measure, and market-to-book MTB as an output-based measure. Audit firm size, usually measured as Big N membership, is the most widely tested and accepted proxy for audit quality. A bulk of empirical audit research (e.g., Becker et al. 1998, Krishnan and Schauer 2000, Bauwhede et al 2003, Cai et al. 2005, and others) verified that large audit firms have stronger incentives and greater competence to provide high audit quality. Market-to-book value is a perception-based measure that assesses the market reactions to audit quality as cited in financial reporting quality. Griffin and Lont (2010) and Menon and Williams (2010) examined market reactions to audit dismissals and resignations, and going concern audit report.

Audit Quality and Earnings Quality

The complexity of research addressing the link between audit and earnings quality is that it's investigating the effect of audit quality on earnings quality, where the latter is initially a proxy for the former. That is, the two concepts are twisted or interdependent on each other.

It's highly expected that high quality auditors would consider not only whether the client's accounting choices are in technical compliance with accounting standards, but also how faithfully the financial statements reflect the firm's underlying economics. A considerable body of research has investigated the relationship between audit quality and earnings quality using various measures for both variables. Some studies approved the positive impact of audit quality metrics on earnings quality. Becker et al. (1998) examines the relation between audit quality and earnings management, as an inverse proxy for earnings quality. They compare absolute value of discretionary accruals for big and non-big audit clients, and found that discretionary accruals are greater for firms with non-big auditors. This implies that lower audit quality is associated with more earnings management, that is, low earnings quality. Caramanis and Lennox (2008) provide same evidence from Greece. They found that when audit hours are lower, (1) abnormal accruals are more often positive and larger, and (2) companies are more likely to manage earnings upwards in order to meet or beat the zero earnings benchmark. They concluded that low audit effort increases the extent to which managers are able to report aggressively high earnings. The same results were reached by Johnson et al. (2002), Myers et al. (2005), Chen et al. 2008, Ho et al. (2010), Lin and Hwang (2010), Lenard and Yu (2012), and others.

Empirical evidence of other studies fails to support the hypothesis of significant impact of audit quality proxies on earnings quality. Employing Korean financial data, Jeong and Rho (1999, 2004), and Park et al. (1999) found no difference in audit quality between big and non-big audit firms in restricting earnings management. Also, in Greece Tsipouridou and Spathis (2012) does not lend credence to the assumption of significant impact of audit quality on earnings quality. Same conclusion was reached by Yasar (2013) which examined the effect of audit firm size on earnings management in the Turkish stock market. Moreover, Butler et al. (2004) found no evidence to support inferences in previous research that firms receiving modified audit opinions manage earnings more than those receiving clean opinions.

Market-to-book value is a perception-based output measure used to assess audit quality. Mansi et al. (2004) and Ghosh and Moon (2005) studied market reaction towards audit quality and auditor tenure and found that investors perceive auditor tenure as improving audit quality. Also, Cahan et al. (2009) found that the market reaction is more significant when there is a greater demand for assurance, for example, in common law countries and firms with large changes in total accruals or with new debt or equity issues.

A sizable body of research lends support to the theoretical prediction relating firms' operational characteristics to different aspects of financial concepts, such as earnings quality, dividend policy, audit issues, stock price movements, and others. Firms' specific variables would, by definition, affect the relation between earnings and audit quality. These variables include (among others); firm size, leverage, incidence of loss, and industrial sector. The effect of firm size is well documented in literature (Atiase 1985, 1987, Bernard and Thomas 1989, Ayers and Freeman 2000, and others); where larger firms tend to have higher earnings quality because of reasons including lower cost of equity capital, availability of public information, lower information asymmetry, and higher earnings predictability. Also, large firms can afford to be a Big N audit client, compared to small firms.

Level of firms' leverage is strongly linked with firms' risk level; where high leveraged firms tend to be highly risky firms. Prior research, such as Collins and Kothari (1989), and Kothari and Shanken (1997) relate riskiness to various aspects such as earnings persistence, effect of earnings announcements, and cost of capital. Also, they tend to have lower earnings quality because of using more discretionary accruals to avoid covenant violation.

The quality of accounting earnings varies considerably from profit to loss cases. Hayn (1995) supported a low informativeness of loss; where reported losses incorporate transitory components which are value irrelevant; indicating low earnings quality.

One more determinant of the association between earnings and audit qual-

ity is the industry membership that appeared to influence such relation. This is evident by the massive literature on the effect of audit specialization (e.g., Balsam et al. 2003, Dunn and Mayhew 2004, Lim and Tan 2009, and others).

Hypotheses Development

The leading study of DeAngelo (1981) argued that Big N auditors provide better audit quality. This argument was examined by extensive subsequent empirical research. Most studies supporting the positive relationship between audit quality and earnings quality have been performed in developed countries, mainly USA. For example, Becker et al. (1998), Krishnan (2003), Gul et al. (2010), and others all provide evidence supporting such linkage. The researcher agreed with Lawrence et al. (2011) that suggested that these results may be driven by differences in client characteristics. Moreover, Francis and Wang (2008) employed large sample of firms from 42 countries over the period 1994–2004 to investigate the impact of audit firm size on earnings quality. They reached that audit quality does constrain earnings management, but only in countries with strong investor protection regimes. This is not true for firms existed in countries with weak legal regimes.

Some evidence from countries, other than US, do not support the hypothesis of positive impact of audit quality on earnings quality (e.g., Park et al. 1999, Tsipouridou and Spathis 2012, Siregar et al. 2012, Yasar 2013).

In an attempt to examine the validity of the well-established hypothesis of positive impact of audit quality on earnings quality using a different context, the Egyptian Stock Market, the research mainly predicts that audit quality has a positive impact on earnings quality.

Given the wide variety of proxies and constructs used to assess the two concepts, I specify two proxies for measuring audit quality; audit firm size and MTB. For earnings quality, I specify three proxies, persistence, predictability, and smoothness.

Research hypotheses are formulated as follows:

1st For Audit firm size, the hypotheses are:

H1: Audit quality, measured by audit firm size positively affects earnings quality.

H1a: There is a significant positive association between auditor size and earnings persistence.

H1b: There is a significant positive association between auditor size and earnings predictability.

H1c: There is a significant positive association between auditor size and earnings smoothness.

2nd For MTB, the hypotheses are:

H2: Audit quality, measured by MTB positively affects earnings quality.

H2a: There is a significant positive association between MTB and earnings persistence.

H2b: There is a significant positive association between MTB and earnings predictability.

H2c: There is a significant positive association between MTB and earnings smoothness.

III. Research Design
Data and Sample Selection

The initial study sample consists of the most active firms continuously listed on the Egyptian Stock Exchange included in EGX 100 during the period of 2011–2016. The following companies were eliminated:

1– Companies in the financial industry are excluded since they operate in different regulatory environments than those of other companies.

2– Companies with insufficient data in at least one variable.

The exclusion criteria ended up with a final sample of 74 firms distributed over four sectors; construction and materials (25 companies), chemicals and pharmaceuticals (10 companies), industrial and basic resources (19 companies), and services; technology, communications, media, and tourism (20 companies). Our sample represents 444 firm-year observations. Data were obtained from companies' disclosed annual financial reports and its supplementary notes.

Research Variables
Dependent Variable

Earnings quality is the research dependent variable. As previously mentioned, earnings quality refers to the capability of reported earnings to reflect firm's operating fundamentals. The paper employs persistence, predictability, and smoothness as proxies of earnings quality, following Francis et al. (2004), Pagalung (2006), and Fanani (2011).

1–Persistence, maps the relationship between current and future earnings. Persistence is measured as the slope coefficient estimate of regressing current and future earnings (Francis et al. 2004).

$$\text{Earnings}_{i,t} / \text{TA}_{i,t} = \beta_0 + \beta_1 \ \text{Earnings}_{i,t-1} / \text{TA}_{i,t-1} + \dot{\varepsilon}_{i,t} \text{--------(1)}$$

Where; $\text{Earnings}_{i,t} / \text{TA}_{i,t}$ is net income of firm i in year t deflated by total assets.

$\text{Earnings}_{i,t-1} / \text{TA}_{i,t-1}$ is the net income of firm i in year t–1 deflated by total assets.

β_1 denotes earnings persistence.

2–Predictability, is the ability of current earnings to predict future earnings. Predictability is measured as the square root of the variance of error term in equation (1) (Francis et al. 2004).

$$\textbf{Pred}_{i,t} = \sqrt{\partial^2} \ (\dot{\varepsilon}_{i,t}) \text{--------------------(2)}$$

3–Smoothness, refers to the variability of earnings with respect to cash flows. Smoothness is measured as the ratio between standard deviation of earnings and standard deviation of operating cash flow, both scaled by total assets (Francis et al. 2004).

$$\text{Sm}_{i,t} = \partial \text{ Earnings}_{i,t} \ / \ \partial \text{ CFO}_{i,t} \text{————————(3)}$$

Independent Variable

Audit quality is the research independent variable. Audit quality refers to the assurance provided to financial reporting. The paper employs audit firm size and MTB as proxies for audit quality, following Francis and Yu (2009), Gul et al. (2010), Zgarni et al. (2012), Lennox and Li (2012), and Yasar (2013).

Audit firm size is included in the analysis as a dummy variable equals 1 if the company is a Big N client, and zero otherwise.

MTB is the firm's market value of equity scaled by firm's book value of equity.

Moderating Variables

Since the paper is mainly concerned with the effect of firms' operational characteristics on the relation between audit and earnings quality, some variables are included in the multivariate analysis to reflect firms' specific characteristics. In line with previous research (e.g., Becker et al. 1998, Myers et al. 2003, Francis and Wang 2008, Lim and Tang 2009, and others), the following variables are included in the regression as moderators for the relationship between audit and earnings quality metrics:

1– Size; where larger firms tend to have higher earnings quality (lower discretionary accruals), and more likely to be a Big N audit client. Size is measured as the natural logarithm of firm's total assets (Becker et al. 1998, Krishnan 2003, Jeong and Rho 2004, and Yasar 2013).

2– Leverage; where high leveraged firms tend to have lower earnings quality because of using more discretionary accruals to avoid covenant violation

Leverage is measured as firm's total liability deflated by book value of equi-ty (Becker et al. 1998, Krishnan 2003, Siregar et al. 2012, and Yasar 2013).

3- Incidence of loss (Bench); where firms experiencing loss tend to have low-er earnings quality. Bench is measured as an indicator variable equals 1 in case of profit, and zero otherwise (Becker et al. 1998, and Krishnan 2003).

4- Sector; where firms belong to different industrial sectors tend to have vary-ing relationships between audit and earnings quality. This is measured as a dummy variable equals 1 if the firm belongs to the reference sector (con-struction and materials), and zero otherwise (Lenard and Yu 2012, and Zgarni et al. 2012).

The researcher chooses to insert the above variables into the regression as moderators, rather than control variables, because of the interlinking between dependent variables (earnings quality proxies) and independent variables (audit quality proxies).

Regression Models

The first research hypothesis examines the impact of audit firm size on earnings quality proxies given firm's operational characteristics. The following is the linear-multiple regression analysis expressing such relation:

$$\mathbf{Pers_{it} / Pred_{it} / Sm_{it}} = \lambda_0 + \lambda_1 \, \mathbf{Au\ size_{it}} + \lambda_2 \, \mathbf{Size_{it}} + \lambda_3 \, (\mathbf{Au\ size_{it}} \times \mathbf{Size_{it}}) + \lambda_4 \, \mathbf{Lev_{it}} + \lambda_5 \, (\mathbf{Au\ size_{it}} \times \mathbf{Lev_{it}}) + \lambda_6 \, \mathbf{Bench_{it}} + \lambda_7 \, (\mathbf{Au\ size_{it}} \times \mathbf{Bench_{it}}) + \lambda_8 \, \mathbf{Sector_{it}} + \lambda_9 \, (\mathbf{Au\ size_{it}} \times \mathbf{Sector_{it}}) + \dot{\varepsilon}_{it} \text{----------------(4)}$$

Where;

$Pers_{it}$ is earnings persistence of firm i for year t, measured as slope coefficient in equation (1).

$Pred_{it}$ is earnings predictability of firm i for year t, measured through equation (2).

Sm_{it} is earnings smoothness of firm i for year t, measured through equation (3).

Au size$_{it}$ is a dummy variable, 1 if the firm is audited by a Big N auditor, 0 otherwise.

Size$_{it}$ is the natural logarithm of total assets.

Lev$_{it}$ is the total liability scaled by book value of equity.

Bench$_{it}$ is an indicator variable, 1 if Earnings$_{i,t}$ / TA$_{i,t}$ > 0, 0 otherwise.

Sector$_{it}$ is an indicator variable, 1 if firm belongs to sector 0, 0 otherwise.

The second research hypothesis examines the impact of MTB on earnings quality proxies given firm's operational characteristics. The following is the linear–multiple regression analysis expressing such relation:

$$\text{Pers}_{it} / \text{Pred}_{it} / \text{Sm}_{it} = \mu_0 + \mu_1 \text{MTB}_{it} + \mu_2 \text{Size}_{it} + \mu_3 (\text{MTB}_{it} \times \text{Size}_{it}) + \mu_4 \text{Lev}_{it} + \mu_5 (\text{MTB}_{it} \times \text{Lev}_{it}) + \mu_6 \text{Bench}_{it} + \mu_7 (\text{MTB}_{it} \times \text{Bench}_{it}) + \mu_8 \text{Sector}_{it} + \mu_9 (\text{MTB}_{it} \times \text{Sector}_{it}) + \acute{\varepsilon}_{it} \text{------------------------(5)}$$

where;

MTB$_{it}$ is the market value of equity divided by book value of equity. All other variables are as defined above.
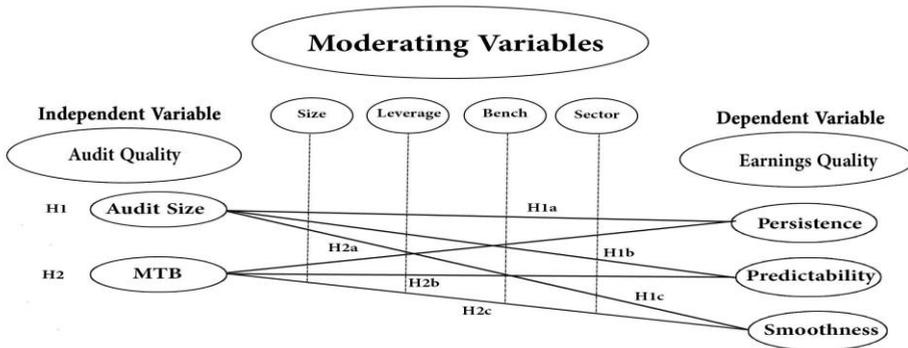
Fig (1): Research Model (Fundamental Analysis)

IV. Empirical Results

This section discusses descriptive statistics and outputs of the fundamental and sensitivity analyses

Table (1)
Summary of Descriptive Statistics for Research Variables
(N= 444 observations)

Variables	Mean	Median	Std. Dev	Minimum	Maximum
Persistence	0.063	0.063	0.079	–0.243	0.390
Predictability	0.056	0.034	0.087	0.001	0.734
Smoothness	0.762	0.551	0.743	0.004	4.550
Audit firm size	0.28	0.000	0.449	0	1
MTB	1.988	1.238	2.449	0.005	24.810
Size	19.902	19.780	1.609	16.245	24.334
Leverage	2.250	0.928	3.339	0.001	24.694
Bench	0.770	1.000	0.420	0	1
Sector	0.34	0.000	0.474	0	1

Table (1) shows that Big 4 auditors represents 28% of the sampled companies, while companies audited by Non–Big 4 audit represent 72% of the sample. For earnings quality proxies; persistence, predictability, and smoothness, all show low differences between their means and medians, also low values for standard deviation, denoting minor dispersion for these metrics. The most dispersed variables among all are MTB and leverage. This is cited in the great differences between their maximum and minimum values, and relatively high standard deviations. All variables show, more or less, low dispersion cited in low standard deviations and low ranges.

As Perquisites for regression tests, the basic tests for normality (Skewness and Kurtosis values) were conducted. Results indicate that the sample is normally distributed; where Kurtosis statistics were varying from –2 to +2. For multi–collinearity, I examine the variance inflation factors (VIFs) for variables,

and ensure a low values (less than 10) for all variables included in our regression models. Thus, effects of both normality and multi-collinearity are isolated.

Table (2)
Correlation Matrix for Study Variables

Variables	Pers	Pred	Sm	AudSize	MTB	Size	Lev	Bench	Sec
Pers	1	0.044	-0.107*	-0.010	0.263**	0.134**	-0.095*	0.47**	-0.087
Pred	0.24**	1	0.202**	0.014	0.054	-0.16**	0.004	-0.088	-0.086
Sm	0.026	0.461**	1	0.113*	0.153**	0.094*	0.18**	-0.2**	-0.004
AudSize	-0.014	0.197**	0.13**	1	-0.09	0.352**	0.153**	-0.069	0.107*
MTB	0.223**	0.175**	0.20**	-0.18**	1	0.047	0.228**	0.112*	0.13**
Size	0.05	-0.12*	0.15**	0.3**	0.015	1	0.332**	0.019	0.046
Lev	-0.067	0.24**	0.153**	0.14**	0.132**	0.24**	1	-0.12*	0.19**
Bench	0.535**	-0.063	-0.18**	-0.069	0.071	0.045	-0.08	1	-0.033
Sec	-0.13**	0.014	-0.10*	0.12*	0.12**	0.054	0.104*	-0.033	1

** Correlation Significant at 1% level (2-tailed)   * Correlation Significant at 5% level (2-tailed)

Table (2) reports Pearson (above the diagonal) and Spearman (below the diagonal) correlation coefficients. Spearman correlations, based on ranks, show more significant coefficients. The most significantly correlated variables are persistence and bench (0.47 Pearson and 0.535 Spearman, both significant at 1% level). Audit firm size shows weak significant correlation with earnings quality proxies; persistence, predictability, and smoothness. Further, these proxies are more significantly correlated with MTB. Yet, correlation coefficients uncover weak association among variables.

Fundamental Analysis

(1) Audit firm size Hypothesis

Table (3)
Outputs of Regression Analysis for the effect of Audit firm size on Persistence

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	–0.348	0.058	–6.042	0.000	
AudSize	0.467	0.091	5.113	0.000	7.070
Size	0.018	0.003	5.962	0.000	2.289
Audsizexsize	–0.022	0.005	–4.898	0.000	2.346
Lev	–0.002	0.001	–1.758	0.079	2.092
AudsizexLev	0.001	0.002	0.349	0.727	2.969
Bench	0.087	0.009	9.382	0.000	1.507
Audsizexbench	–0.02	0.017	–1.196	0.232	4.537
Sector	–0.001	0.008	–0.151	0.88	1.585
Audsizexsector	–0.013	0.015	–0.891	0.373	2.307
R–Sq = 30%		**F= 20.19**		**N=444**	**P–value = 0.000**

Results of regression analysis in table (3) indicate that the model is statistically significant in elaborating the relationship between audit firm size and persistence, where P–value turns out to be zero (< 5%). The low values of variance inflation factors (VIFs) for independent and control variables (all less than 10) indicate the inexistence of multicollinearity problem. Coefficient determination value (R–Sq) implies that 30% of the variations in earnings persistence can be explained through changes in variables contained in the model. Moreover, the audit firm size coefficient value (**0.467**) and significance (**0.000**) indicate a positive significant impact of audit firm size on persistence, implying the **Acceptance of the first hypothesis predicting a positive significant association between audit firm size and earnings persistence**.

The above result supports evidence provided by previous studies conducted in developed contexts such as Becker et al. (1998), Krishnan (2003), Gul et al. (2010), and others, which reached a positive impact for audit firm size on earnings quality metrics. Also, Sumiadji et al. (2019) provide empirical evidence form Indonesia supporting such positive link.

Table (4)
Outputs of Regression Analysis for the effect of Audit firm size on Predictability

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	0.346	0.073	4.704	0.000	
AudSize	–0.148	0.117	–1.268	0.206	7.070
Size	–0.014	0.004	–3.714	0.000	2.289
Audsizexsize	0.008	0.006	1.403	0.161	2.346
Lev	0.003	0.002	1.681	0.094	2.092
AudsizexLev	–0.003	0.003	–0.992	0.322	2.969
Bench	–0.017	0.012	–1.398	0.163	1.507
Audsizexbench	0.005	0.021	0.254	0.799	4.537
Sector	–0.021	0.011	–1.989	0.047	1.585
Audsizexsector	0.001	0.019	0.078	0.938	2.307
R–Sq = 5.3%		**F= 2.696**	**N=444**		**P–value = 0.005**

Table (4) explores the statistical significance of the model in shaping the relation between audit firm size and firms' predictability; this seems obvious in P–value. However, the model explains only minor variations in predictability, as indicated by low R–Sq (5.3%). In addition, the coefficient of Audit firm size (**–0.148**) is very low indicating a negative weak insignificant impact of Audit firm size on predictability (**sig = 0.206**). This leads to the **Rejection of the second hypothesis concerning earnings predictability**.

This result corresponds that provided by Lenard and Yu (2012), and Zgarni et al. (2012) which discard the influence of audit firm size on earnings quality proxies in Chinese and Tunisian contexts. Nevertheless, results contradict evidence provided by Behn et al. (2008) which supports a positive link between

audit firm size and predictability. Their evidence shows that analysts' earnings forecast accuracy is higher and the forecast dispersion is smaller for firms audited by a Big N auditor.

The researcher believes that the reached negative association between audit firm size and predictability can make sense. Chang et al. (2012) found that discretionary accruals have a greater ability to predict future cash flows, that is, increasing the level of discretionary accruals increases predictability. If this is the case, and given the fact that discretionary accruals denote earnings management; then the negative relation between audit firm size and predictability could be positively interpreted.

Table (5)
Outputs of Regression Analysis for the effect of Audit firm size on Smoothness

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	0.424	0.557	0.761	0.447	
AudSize	0.216	0.884	0.244	0.807	7.070
Size	0.016	0.029	0.554	0.580	2.289
Audsizexsize	0.037	0.044	0.844	0.399	2.346
Lev	0.109	0.013	8.163	0.000	2.092
AudsizexLev	–0.188	0.021	–9.179	0.000	2.969
Bench	–0.302	0.090	–3.364	0.001	1.507
Audsizexbench	–0.272	0.163	–1.675	0.095	4.537
Sector	0.008	0.082	0.097	0.923	1.585
Audsizexsector	–0.459	0.145	–3.167	0.002	2.307
R–Sq = 26%		**F= 16.736**		**N=444**	**P–value = 0.000**

Table (5) indicates the significance of the model (P–value=0) in illustrating the relation between audit firm size and firms' earnings smoothness. R–Sq implies that 26% of variations in smoothness can be justified by independent variables. The sign and significance of audit firm size coefficient (**0.216, 0.244**) suggest a weak positive insignificant correlation between audit firm

size and earnings smoothness. Thus, the **third hypothesis is Rejected** at 5% significance level.

Same results were reached by Vanstraelen (2000) that employed data from Belgium and found that audit quality metric was insignificantly correlated to financial reporting quality. Also, Davis et al. (2003) provide evidence that audit tenure, one of the audit quality indicators, is associated with lower financial reporting quality. Moreover, Boone et al. (2012) and Reynolds and Francis (2000) found no differential effect of Big N audit on earnings quality.

It is noteworthy that smoothness could either reflect enhanced earnings quality, or opportunistic earnings management. Therefore, interpretation of the insignificant association between audit firm size and smoothness should be considered with caution.

(2) MTB Hypothesis

Table (6)
Outputs of Regression Analysis for the effect
of MTB on Persistence

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	–0.048	0.053	–0.0902	0.367	
MTB	–0.061	0.020	–2.992	0.003	5.737
Size	0.002	0.003	0.561	0.575	1.975
MTBxsize	0.004	0.001	3.756	0.000	8.180
Lev	–0.0000	0.001	–0.046	0.964	2.073
MTBxLev	–0.001	0.000	–4.246	0.000	5.372
Bench	0.09	0.010	8.826	0.000	1.935
MTBxbench	–0.009	0.005	–1.879	0.061	4.076
Sector	–0.026	0.01	–2.677	0.008	2.180
MTBxsector	0.005	0.003	1.510	0.132	4.666
R–Sq = 34.2%		F= 25.11		N=444	P–value = 0.000

The above results reveal the significance of the model in illustrating the relation between MTB and earnings persistence; where P–value equals zero. The model explains 34% of variations in persistence. Results show that persistence is significantly associated with control variables, yet such association is very weak. In addition, the coefficient of MTB (**–0.061**) is very low indicating a negative weak impact of MTB on persistence, yet significant (**sig = 0.003**). This leads to the **Rejection of the hypothesis assuming a positive significant association between MTB and earnings persistence**.

Table (7)
Outputs of Regression Analysis for the effect
of MTB on Predictability

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	0.345	0.07	4.956	0.000	
MTB	–0.052	0.027	–1.929	0.050	5.737
Size	–0.014	0.004	–3.947	0.000	1.975
MTBxsize	0.003	0.001	1.961	0.051	8.180
Lev	0.003	0.002	1.485	0.138	2.073
MTBxLev	0.000	0.000	–1.233	0.218	5.372
Bench	–0.022	0.013	–1.678	0.094	1.935
MTBxbench	0.001	0.006	0.235	0.814	4.076
Sector	–0.017	0.013	–1.363	0.173	2.180
MTBxsector	–0.001	0.004	–0.189	0.850	4.666
R–Sq = 5.7%	**F=2.942**		**N=444**		**P–value = 0.002**

Although the model is considered significant (low P–value), value of R–square uncovers the fact that independent variables are not powerful in justifying variations in predictability. Regardless of its significance, the low negative coefficient of MTB indicates the **Rejection of the hypothesis predicting a significant positive association between MTB and earnings predictability**.

Results agree with evidence provided by Bradshaw et al. (2001) which in-dicates that audit quality measured by investors' reaction to future earnings problems is not associated with earnings quality measured by high accruals.

Table (8)
Outputs of Regression Analysis for the effect
of MTB on Smoothness

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	0.307	0.585	0.526	0.599	
MTB	0.107	0.226	0.474	0.636	5.737
Size	0.034	0.03	1.152	0.25	1.975
MTBxsize	–0.005	0.012	–0.428	0.669	8.180
Lev	0.013	0.015	0.864	0.388	2.073
MTBxLev	0.004	0.003	1.323	0.187	5.372
Bench	–0.4	0.112	–3.56	0.000	1.935
MTBxbench	0.029	0.051	0.557	0.578	4.076
Sector	–0.051	0.106	–0.483	0.629	2.180
MTBxsector	–0.016	0.036	–0.440	0.66	4.666
R–Sq = 9.3%	**F= 4.973**		**N=444**		**P–value = 0.000**

Regression analysis indicates low explanatory power for the model (R–Sq =9.3%), whereas P–value reveals model's significance. Smoothness is not sig-nificantly associated with any of the included variables, except for bench indi-cator variable. MTB turned out to be positively related with smoothness. Yet, it's weak insignificant relation (0.107, 0.636). This leads to the **Rejection of the third hypothesis assuming a positive significant association be-tween MTB and earnings smoothness**.

For MTB proxy, it measures investors' reaction to firm/audit related events. This perception–based measure of audit quality is relatively indirect compared to the other output–based measures. The reason is that auditor's influence over firm value is comparatively small relative to firm-level and economy–wide factors. The reached insignificant association between MTB

and earnings quality proxies can be interpreted apart of audit quality issue. Movements in market prices in the Egyptian stock market have been proven to be uncorrelated to companies' performance.

Sensitivity Analysis

In order to check for the robustness of the results, I expand my analysis to include Confirmatory Factor Analysis. This analysis is employed to form a composite variable from many proxies indicating a certain concept. The idea is to dimensionally reduce the information content contained in many indicators and pool it into one variable.

To be valid, confirmatory factor analysis must meet certain criteria: (1) Kaiser–Meyer–Olkin (KMO) must be greater than or equal 50% and Bartlett's test < 0.05, (2) a Measure of Sampling Adequacy (MSA) value must be greater than or equal 50%, and (3) Communalities value must be greater than or equal 50%.

I performed the confirmatory factor analysis on the 3 earnings quality indicators; persistence, predictability, and smoothness. KMO turned out to be < 0.5, implying that these 3 proxies could not be aggregated into one variable. Only persistence and predictability were possible to be pooled into one factor. Table (9) illustrates the results of confirmatory factor analysis:

Table (9)
Outputs of Confirmatory Factor Analysis
of earnings quality proxies

KMO and Barlett's Test:	
Kaiser–Meyer–Olkin Measure of Sampling Adequacy	0.500
Barlett's Test of Sphericity	0.03
df	1
Sig.	0.000
Communalities:	
Persistence	0.60
Predictability	0.60

Total Variance Explained:			
Factor	Total	% of Variance	Cumulative %
1	1.044	52.217	52.217
2	0.956	47.783	100.00

The regression analyses were re-conducted to test for the existence of a significant positive association between auditor size/MTB and factor compromising persistence and predictability.

Table (10)
Outputs of Regression Analysis for the effect
of Audit firm size on Factor

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	–3.023	0.783	–3.861	0.000	
Aud Size	4.381	1.242	3.528	0.000	7.070
Size	0.122	0.041	3.108	0.003	2.289
Audsize x size	–0.211	0.062	–3.405	0.001	2.346
Lev	–0.028	0.019	–1.505	0.133	2.092
Audsize x Lev	0.023	0.029	0.796	0.427	2.969
Bench	0.925	0.126	7.324	0.000	1.507
Audsizexbench	–0.153	0.228	–0.671	0.502	4.537
Sector	–0.124	0.115	–1.081	0.280	1.585
Audsizexsector	–0.071	0.204	–0.348	0.728	2.307
R–Sq = 19.2%	F= 11.428		N=444		P–value = 0.000

Results indicate the significance of the model, where P-value is less than 5%. However, only 19% of variation in dependent variable (factor) is explained through independent variables. The coefficient (4.38) and significance (0.000) of Audit firm size imply the positive significant association between audit firm size and factor, leading to the **Acceptance of the hypothesis predicting a significant impact of audit quality on earnings quality**.

It is worth mentioning that, in the fundamental analysis, audit firm size turned out to be positively and significantly associated with earnings persistence, but uncorrelated with predictability.

Table (11)
Outputs of Regression Analysis for the effect
of MTB on Factor

Variables	β	Std. Error	t	Sig.	VIF (collinearity)
Constant	0.311	0.711	0.438	0.662	
MTB	–0.955	0.275	–3.478	0.001	5.737
Size	–0.059	0.036	–1.647	0.100	1.975
MTBxsize	0.059	0.014	4.118	0.000	8.180
Lev	0.011	0.018	0.594	0.553	2.073
MTBxLev	–0.017	0.004	–4.267	0.000	5.372
Bench	0.938	0.137	6.859	0.000	1.935
MTBxbench	–0.093	0.062	–1.496	0.135	4.076
Sector	–0.363	0.129	–2.818	0.005	2.180
MTBxsector	0.053	0.044	1.202	0.230	4.666
R–Sq = 26.1%	F= 17.065		N=444		P–value = 0.000

Regression analysis denotes that the model is significant in illustrating the relation between factor and MTB. The coefficient of MTB (–0.955) implies a negative relation between the two variables. Moreover, this correlation is significant at 5% level. **Therefore, the hypothesis of a positive significant association between MTB and factor is Rejected**.

It is noted that results of the fundamental analysis reject the positive significant association between MTB and both persistence and predictability, the two variables of which the factor is compromised.

Additional Analysis

As an additional robustness analysis, I investigate the differential effect of audit firm quality proxies; Size and MTB. For this purpose, the sample was segregated into two sub–samples according to (Reynolds and Francis 2000, and Boone et al. 2012):

(1) Audit firm size; Big 4 audit clients and Non–big 4 audit clients.

(2) MTB's median; High MTB firms (MTB > 1.238), and Low MTB firms (MTB < 1.238)

1-Testing for Audit firm size Mean Differences:

Table (12)
Independent Samples Test of earnings quality
proxies for Audit firm size

	Big 4 audit N=124	Non–big 4 audit N=320	Differences (Sig)
Persistence	0.06191	0.06363	–0.00172 (0.018)*
Predictability	0.05798	0.05531	0.00267 (0.771)
Smoothness	0.8966	0.7099	0.18665 (0.837)
Factor	–0.02419	0.00937	–0.03357 (0.751)

*Significant at 5% significance level

Results of T–Test imply that the means of the two sub–samples are significantly different only with respect to persistence. The means are not significantly different with respect to predictability, smoothness, nor factor compromising persistence and predictability. This supports evidence provided by fundamental and sensitivity analyses of accepting only the hypothesis predicting a significant positive association between audit firm size and earnings persistence, and rejecting the other hypotheses concerning such association with predictability, smoothness, and factor.

2-Testing for MTB Mean Differences:

Table (13)
Independent Samples Test of earnings quality proxies for MTB

	High MTB firms N=222	Low MTB firms N=222	Differences (Sig)
Persistence	0.07642	0.04987	0.0265 (0.000)*
Predictability	0.05239	0.05971	–0.0073 (0.374)
Smoothness	0.8305	0.6937	0.1367 (0.05)*
Factor	0.11784	–0.11785	0.2357 (0.013)*

*Significant at 5% significance level

Results of T-Test reveal that the means of the two sub-samples are significantly different with respect to persistence, smoothness, and factor, but not with respect to predictability. This contradicts results of fundamental and sensitivity analyses which reject any association between MTB and any of earnings quality proxies.

However, it should be mentioned that, in terms of measurement, most perception-based measures are continuous with wide variation in the consensus on their measurement and the degree of measurement error (Defond and Zhang 2014).

V. Summary and Conclusion

This study examined the interrelation between audit quality and earnings quality given different operational characteristics. I investigate the impact of certain audit quality proxies on earnings quality indicators for a sample of 74 listed Egyptian firms during the period from 2011-2016. The study period seems plausible since it follows the reform of corporate governance code in

2011, so it is worthwhile to test its effect on financial markets fundamentals. The relation between audit and earnings quality is considered to complex; based on the fact that audit quality is a component of financial reporting quality. The reason is that high audit quality increases the credibility of financial reports. Therefore, research hypotheses are premised on the widely held belief that auditing quality is a value driver for financial reporting quality, and thus, predict a positive significant association between audit quality proxies and earnings quality indicators.

There are various indicators for both concepts. For audit quality, I chose two measures; audit firm size (as input-based actual measure), and market-to-book MTB (as output-based perceived measure). For earnings quality, three accounting-based measures were selected; persistence, predictability, and smoothness. Four control variables were included in the regression to account for firms' operational characteristics; firm size, leverage, and two dummy variables indicating profit/loss, and industrial sector.

In the fundamental analysis, I regresses audit firm size and MTB on earnings quality proxies individually. In the sensitivity analysis, I employ confirmatory factor analysis to aggregate the three earnings proxies into one factor. However, only persistence and predictability met the conditions to be aggregated, and regression analysis was re-conducted. As an additional analysis, I segregate the sample into two sub-samples according to audit firm size (Big 4 and Non-big 4), and MTB (high and low). The purpose is to explore means differences, if any, between the two sub-samples.

Conclusions

The first hypothesis predicts a positive significant association between audit firm size and earnings quality proxies. This hypothesis has been proven valid only for persistence, but not for neither predictability nor smoothness. Results of sensitivity analysis indicate that audit firm size is significantly associated with factor compromising of persistence and predictability. Going forward, T-test means differences reveal that the two sub-samples (big/non-big) are

significantly different only with respect to persistence. Therefore, evidence is consistent with the premise that audit quality hardly affects earnings quality.

The same findings were reached by a number of studies employing different measures and different contexts. For example, Reynolds and Francis (2000), Boone et al. (2012), Lenard and Yu (2012), and Zgarni et al. (2012), all reached no differential impact of Big N auditors on earnings quality.

The second hypothesis predicts a positive significant association between MTB and earnings quality measures. This hypothesis was rejected, implying that MTB has no effect on earnings quality. Further, sensitivity analysis and T-test support the same implication, where MTB appeared to be uncorrelated to factor compromising persistence and predictability. Also, the two sub-samples (high/low MTB) were indifferent with respect to earnings quality proxies.

This finding is consistent with Bradshaw et al. (2001), Mansi et al. (2004) and Ghosh and Moon (2005), which discard any market reaction to firm-audit related events.

Research results can be interpreted as follows; **first**, the reason for rejecting research hypotheses can be attributable to the fact that these hypotheses have been formulated through inducting results of previous studies implemented in developed countries, mainly the US. Thus, the cultural dimension plays a fundamental role in justifying the results. This follows the idea that the association between audit quality and earnings quality may vary across countries because of the differences in countries' institutional settings, regulatory mechanisms and auditors' incentives (Francis and Wang 2008). **Second**, evidence provided by the study is bounded by the fact that the two concepts; audit quality and earnings quality, are interdependent on each other, and on firms' innate characteristics and financial reporting systems. **Third**, as argued by Defond and Zhang (2014), existence of various proxies for measuring audit quality makes it difficult to expect agreement across results. The reason is that proxies in each category (input/output and actual/perceived) reflect different

dimensions of audit quality. For example, MTB has the advantage of capturing the continuous nature of audit quality, yet it is often far from the auditor's influence and more susceptible to measurement problems.

This paper contributes to the body of literature addressing the impact of audit quality on earnings quality given firms' different dimensions. Egypt, as an emerging economy, has different institutional setting, auditors' incentives, and regulatory mechanisms. Results shed the light on the fact that it is difficult to link audit quality indicators to firms' financial performance. I believe that such evidence seems unsurprising; studies employing data from Egyptian listed companies (e.g., Dahawy et al. 2008, Hassan 2008, and Elbannan 2010, and others) fail to link earnings quality and companies' performance to fundamentals. The Egyptian Stock Market is found to react passively, sometimes negatively, to fundamentals related to firm-specific characteristics and industry factors. Such an outcome can be justified by the halo effect of economy-wide events and insiders' information that lead the scene in the Egyptian setting.

Recommendations

Evidence provided has significant intuitions for different parties. **First**, **for companies**, reliance on Big N auditors would not push up earnings quality. Analyzing metrics that focus on firm's specific characteristics would much help improving financial reporting quality rather than hiring Big N auditor. Put it differently, Big N auditor would not guarantee a high quality reporting. **Second**, **for researchers**, no single category of audit quality proxies illustrates a complete picture of audit quality. It is recommended that when possible, researchers use multiple proxies from different categories to take advantage of their strengths and mitigate their weaknesses. **Third**, **for corporate governance regulators**, it's their responsibility to prescribe appropriate corporate governance structure to ensure financial reporting quality. Setting strong regulatory mechanisms can enhance high-quality audits, which in turn would improve earnings quality.

Future Research

The researcher believes that the different dimensions and implications of this research topic make it unresolved and long lasting accounting issue. **Further research** could be conducted to emphasize the client's demand for audit quality, rather than auditors' supply of audit quality that focus of auditors' independence and competency. A promising area for future research is to develop new model capable of integrating different dimensions of Actual audit measures and earnings quality indicators. Moreover, researchers would propose how to behaviorally enhance market reaction to firm–audit events.

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