

# DOES IFRS CONVERGENCE AFFECT EARNINGS QUALITY AND MARKET VOLATILITY?

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## Abstract

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In 2006, Egypt issued new standards to be in line with the International Financial Reporting Standards (IFRS). The new Egyptian Accounting Standards (EAS) were created with the intention of making financial statements more comparable and transparent, and they replaced the country's previous 1997 and 2002 standards. This study aims to investigate how these new modifications of the EAS affect the market volatility (MV) and earnings quality (EQ) in such a developing country. Using data from 184 observations from 46 non-financial Egyptian listed firms for the period from 2013 to 2018, our results show that IFRS convergence has no effect on EQ (Mahmoud, 2018; Osinubi, 2020). Earnings quality is also found to be inversely related to MV (Hung & Van, 2020; Wongchoti, Tian, Hao, Ding, & Zhou, 2021), and IFRS has a significant positive impact on MV. The results also confirm no change in EQ and MV after the new EAS. These findings can guide standard setters and regulators that applying high-quality financial standards is not solely sufficient to provide accurate information and that other factors, such as legal enforcement, organization performance, and increasing the cost of compliance, are needed alongside post-IFRS convergence.

**Keywords:** IFRS, Earnings Quality, Market Volatility, Egyptian Accounting Standards, Firm Leverage, Firm Size

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## 1. INTRODUCTION

Market volatility (MV) is a common phenomenon in both developed and emerging economies. It receives great attention from both academics and practitioners as it reflects the uncertainty in financial markets

(Ebeid & Alkholi, 2004) and is considered a measure of risk that is tactically used in investment and trading decisions (Chun, Cho, & Ryu, 2020). Also, investors depend on it in establishing their optimal portfolio (Lambertides & Mazouz, 2013). They track the volatility of the stock market in real-time to

optimize portfolio strategy and avoid market risk (Wang, Ma, Liu, & Yang, 2020). Stock price volatility (SPV) is defined as the variation or deviation of a stock price from the mean (Zainudin, Mahdzan, & Yet, 2018). In addition, according to Bu, Fu, and Jawadi (2019), volatility is defined as an indicator of the dispersion of returns for a given security, and it has been considered a risk indicator.

Since 2005, all organizations listed in the European Union have been required to prepare their financial statements in accordance with the International Financial Reporting Standards (IFRS). Regulators state that adopting IFRS will make certain that all financial statements are transparent and comparable, and that the quality of financial reporting will dramatically improve (Zeghal, Chtourou, & Fourati, 2012). Thus, there will be an increase in the quality of firm-specific information available in the market, which will affect the levels of both synchronicity and idiosyncratic volatility. In other words, depending on an organization's specific information, prices may vary; for instance, if a company's movement in the market is slow, the idiosyncratic volatility will increase (Castro & Santana, 2018). Investors are more likely to trust the information disclosed by companies who adopt the standards of IFRS, and it also occurs at no additional cost. Therefore, stock prices will be volatile based on the company's performance.

In Egypt, in 2006, new Egyptian Accounting Standards (EAS) were issued under Minister of Economy Decision No. 243 of 2006, to cancel and replace the EAS issued by the Ministerial Decree No. 503 of 1997 and No. 345 of 2002. The new standards were prepared in conformity with International Accounting Standards (IAS) to assist Egyptian firms in preparing financial statements that are transparent and comparable. However, in January 2016, Decree No. 110/2015 of the Ministry of Investment issued a new 39 EAS to replace the former 35 standards, which were created to align with the IFRS, except for minor amendments to these standards to conform to Egyptian reality. Therefore, the topics that are not addressed in the Egyptian standards will be processed according to the IFRS until the Egyptian standards address these issues. These topics include lease accounting, treatment of share-based standards and fixed assets, and depreciation.

Such a standards harmonization policy has been adopted by the Egyptian government to develop an accounting system that consists of higher quality to aid decision-makers and attract local and foreign investors by enhancing their level of confidence in the Egyptian capital market.

This paper is motivated by the convergence of IFRS all over the world, aimed at harmonies standards and how IFRS implementation has caused debates and concerns. One stream of research (Barth, Landsman, & Lang, 2008, Fakhfakh & Slaheddine, 2016; Ismail, Kamarudin, van Zijl, & Dunstan, 2013; Bova & Pereira, 2012; Latridis, 2010) proved that there was an increase in the quality of earnings after IFRS adoption. They agree that this improvement is due to some factors such as: enhancing comparability; high disclosure requirements under IFRS; efficient accounting measurements; the standards' flexibility; and the elimination of the accounting alternatives.

As a result of all such factors, managerial discretion and the extent of opportunistic earnings management are reduced. IFRS also permits the use of measurements that better reflect the company's position, such as the use of fair value accounting. Another stream of research, such as Daske, Hail, Leuz, and Verdi (2008) and Ball, Robin, and Wu (2003), suggested that the opposite may be true and that IFRS adoption may result in lower quality financial reporting information, which will increase uncertainty and increase stock prices' volatility. Likewise, adopting IFRS does not guarantee high-quality accounting information because IFRS state rules give little guidance on how to implement best practices. Thus, managers have the flexibility to adopt their own guidance, which could encourage them to exploit accounting discretion to their own advantage and therefore promote more earnings management. Furthermore, companies could still participate in earnings management if standards are weak.

Using the data of 184 observations from 46 non-financial corporations listed on the Egyptian Stock Exchange for the period from 2013 to 2018, we find that adopting IFRS reduces earnings quality (EQ) and increases stock price volatility. Consequently, the researchers find that with regards to the EAS, which were modified in 2015 to increase their conformity with IFRS, there will be either a negative impact or no noticeable effect on the Egyptian information environment. This is because the modernity of standards will increase the possibility of application errors.

While there is literature emerging on the adoption of IFRS, this study is the first to explore, within the Egyptian context, how adopting IFRS impacts a company's stock price volatility. Policymakers will benefit from this study in terms of evaluating best practices for the Egyptian market. Furthermore, this study will analyze the debates surrounding the impact of IFRS convergence with regard to financial reporting quality and market instability as measured by stock prices.

The rest of this paper is organized as follows. Section 2 introduces the related literature and develops hypotheses. Section 3 describes the research methodology, sample selection, and research design. Section 4 presents the empirical results. Section 5 discusses the findings; and finally, the conclusion and suggestions for future studies are provided in Section 6.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Due to many countries across the world adopting IFRS, accounting researchers have been evoked to investigate and analyze its application, specifically its impact on accounting quality across various countries or regions. However, as Egypt's accounting standards are set by the government, few studies (Ebaid, 2016; Masadeh, Mansour, & Al Salamat, 2017; Mahmoud, 2018; Mansour, 2021) investigated such an impact after the new edition of the EAS was released.

Even though the current IFRS regime has been in place since 2005, the majority of IFRS studies conducted since that time have focused on how capital markets and accounting information have

been affected by its implementation. However, fewer studies have examined IFRS compliance levels and their consequences (Kimeli, 2017). As a result, there is a motivation to study such standards of compliance as well as methods for achieving the highest level of standard compliance possible in a developing country such as Egypt. In order to achieve this objective and investigate how the 2015 EAS modifications affect stock price volatility and earnings quality within the Egyptian capital market, the relationship between earnings quality, IFRS, and stock volatility will be reviewed and discussed throughout this literature.

## 2.1. Theoretical framework

There are several theories in the literature that explain the adoption and implementation of IFRS and earnings management. Agency theory, information asymmetry theory, decision usefulness theory, stakeholder theory, and institutional theory are examples (Kimeli, 2017; Boolaky, Omoteso, Ibrahim, & Adelopo, 2018). The most important things that can be discussed are the following.

### *Agency theory*

The agency theory emphasizes the relationship between the principal (stockholder) and the agent. As per the agency theory, a company that functions well can minimize agency costs (Deegan & Unerman, 2008). When segregation occurs between ownership and management, problems may surface. Management and the principal may have competing interests, and there may be asymmetric information, which can lead to agency costs. Thus, businesses face additional costs to operate, which impact firm performance (Shbeilat, 2018). This literature has criticized agency theory for focusing on the firm's purpose in the short term.

### *The stakeholder theory*

Within the stakeholder theory, it suggests that shareholders are not the only stakeholders within the organization, and when it comes to financial statements, there are other parties interested: creditors, customers, employees, suppliers, and competitors. Therefore, it is paramount to satisfy all stakeholders within a company.

As a result, as accountants prepare financial reports, they may feel pressured to meet those needs, which could cause vital information to be misrepresented. This, in turn, provides an opportunity for corruption to happen by allowing its agents to transfer wealth from the company's shareholders to another (Smallman, 2004). Whether a company has good financial results or not, management should work in the interests of all stakeholders and remain neutral (Deegan, 2004).

### *Information asymmetry theory*

Akerlof's (1970) paper on the lemon market established the information asymmetry theory. It illustrates the issue of adverse selection, which occurs when one purchaser has more accurate information than another within a transaction (Kimeli, 2017). Therefore, according to this paradigm, financial markets are faulty, and with regard to signing a financial contract, parties are thought to have insufficient information to complete transactions solely (Mwangi, Makau, & Kosimbei 2014). Financial reports can act as a negotiator

between a company's external and internal parties, so if there is a non-disclosure of certain information, it can create an imbalance. As a result, financial reporting contributes to the reduction of asymmetry by requiring minimum acceptable disclosure in accordance with accounting standards. These requirements make it easier for financial statement users to disclose all relevant information for decision-making. As a result, accounting standards harmonisation aids in reducing information asymmetry between insiders and outsiders by establishing the minimum information disclosure requirements (Yu, 2010). This paradigm has been criticised for being overly reliant on financial market regulation. This is because regulations specify the minimum amount of information that must be disclosed as well as the quality of disclosure in some cases (Kimeli, 2017).

### *Institutional theory*

Studies into adopting and implementing IFRS should investigate how much values, beliefs, and cultural norms influence actors' decisions (Lounsbury, 2008; Thornton & Ocasio, 2008). Friedland and Alford (1991) introduced these ideas into institutional theory, which is based on the concept of institutional logic and a group approach to rationality.

Accounting is an institution because it involves actors and power in a set of standardised and rule-bound social practices. Accounting practises are thus justified using justifications used to keep the appearance of legitimacy (Dillard, Rigsby, & Goodman, 2004). In fact, economic justifications are insufficient to explain why IFRS exists. IFRS's alleged economic benefits are not supported by empirical evidence (Chua & Taylor, 2008). As a result, institutional arguments have the potential to provide broader explanations for the spread of IFRS.

IFRS adoption has been extensively researched using a qualitative approach based on the legitimacy premise (Mir & Rahaman, 2005; Nurunnabi, 2015; Irvine, 2008; Hassan, Rankin, & Lu, 2014; Tahat, Omran, & AbuGhazaleh, 2018; Krishnan, 2018). According to these studies, many countries that are underdeveloped have implemented IFRS to make a statement because entities such as the World Bank and the International Monetary Fund (IMF) have imposed pressure (Guerreiro, Rodrigues, & Craig, 2021).

Other quantitative studies have looked at how IFRS adoption has institutional pressures on companies (Judge, Li, & Pinsker, 2010; Lasmin, 2011; Pricope, 2016; Koning, Mertens, & Roosenboom, 2018; Alon & Dwyer, 2014; Mantzari, Sigalas, & Hines, 2017). They found that power is a key social-economic strategy for controlling organisational behaviour by encouraging or imposing IFRS compliance (Mantzari et al., 2017). In the accounting field, the International Accounting Standard Board (IASB) has the authority to make the IFRS the dominant framework that is accepted globally. This was largely the result of the alliance of powerful civil society actors, such as the government, parent companies, integrated financial and product markets, multinational organizations, and professional networks, who accepted the superiority of IFRS as a given (Suddaby, Cooper, & Greenwood, 2007; Mantzari et al., 2017).

Other researchers (Carpenter & Feroz, 1992, 2001; Maroun & van Zijl, 2016) have studied how firms feel pressured to adopt the IFRS. These pressures help to analyze what a company's motivation is to put the standards into practice and how their firm will change: educational normative pressures (Carpenter & Feroz, 1992, 2001), imitating leading companies (Touron, 2005), or complying with the recommended best practice (Maroun & van Zijl, 2016).

In the accounting field, most empirical studies that employ the institutional theory, pressures, and Oliver's (1991) strategic responses investigate why and how organisations effect or resist change (Osinubi, 2020; Aburous, 2019; Hampel, Lawrence, & Tracey, 2015; Canning & O'Dwyer, 2016). Aburous (2019) stated that there is a lack of research on IFRS implementation as well as a lack of understanding of how concrete practises of institutional work shape field boundaries and power distribution among actors.

Institutional logic can also be used to examine a company's accounting decisions. Carneiro, Rodrigues, and Craig (2017) and Guerreiro, Rodrigues, and Craig (2012) investigated the accounting harmonisation process in many countries and discovered that competing and prevailing institutional logic that moderated the organisational interests, values, and assumptions shaped the evolution of accounting practises and constrained the choice of accounting standards by organizations. They discovered that the financial sector and banks are concerned about the impact of fair value accounting measurements and the technical complexity of IFRS standards for financial instruments, making them resistant to adoption. At the same time, other non-financial companies are avoiding convergence with IFRS due to a shortage of qualified accountants, unreliable regulatory systems, and competing tax systems. Finally, all such studies highlight the logic of resistance that occurs when specific accounting standards are implemented in complex social settings shaped by users' interests (Guerreiro et al., 2021).

## 2.2. Earnings quality and IFRS

IFRS is a set of high-quality standards that aims to eliminate barriers for corporations who seek to access the international public equity market, and they are vital for investors who are seeking global investment opportunities. IFRS provides a uniform financial language across all competitors internationally, which makes presenting financial statements equal amongst all businesses. As a result, comparing the market becomes easier (Pradhana, 2014). Since the IFRS were adopted globally and the regulations were implemented in these countries, there has been an increase in research that empirically investigates the before and after effects of adopting these standards on earnings quality.

Earnings reflect the company's financial performance, and the persistence of earnings enables investors to predict future earnings, which leads to better investment decisions (Makhsun, Yuliansyah, Pahlevi, Razimi, & Muhammad, 2018). Investors and analysts depend mainly on earnings figures in valuing firms, making earnings forecasts and stock recommendations, so the quality of these figures is

critical to the financial markets (Jing, 2007). Many studies were directed to investigate how the adoption of IFRS affects earnings quality, and these studies provide mixed results.

Iatridis (2010) examined the impact of IFRS adoption on the quality of accounting numbers by applying empirical analysis to 241 UK firms, all of which had already adopted the UK generally accepted accounting principles (GAAP) prior to adopting IFRS. The result showed that since the companies had implemented IFRS, their information asymmetry had declined, along with earnings manipulation. Barth et al. (2008) also examined the consequences of IFRS adoption in 21 countries that had voluntarily adopted IFRS. They found that the companies that had adopted IFRS had lower earnings management and an improvement in earnings quality. Ismail et al. (2013) investigated how adopting the IFRS affected earnings quality across 4,010 companies in an empirical study three years before and three years after the adoption of the IFRS. The results illustrated that earnings management was lower and the value relevance was higher after the standards were implemented. Dimitropoulos, Asteriou, Kousenidis, and Leventis (2013) looked into companies listed on the Athens Stock Exchange (ASE) to see if their accounting information on earnings management, timely loss recognition, and value relevance had changed prior to the IFRS (2001-2004) or during this period (2005-2008). Results showed that earnings management was less, timely loss recognition was more, and the value relevance of earnings and book value of equity was greater than under the local accounting standards. Jung (2016) and Makhsun et al. (2018) investigated earnings persistence and quality before and after IFRS adoption. They found that after IFRS adoption, earnings persistence, and earnings quality increased.

In contrast to the above studies, Ahmed, Neel, and Wang (2013) also investigated whether earnings quality had changed after the mandatory adoption of IFRS and concluded that earnings quality had declined. In addition, Osinubi (2020) finds that IFRS implementation witnessed a limited progression in Nigeria.

Furthermore, Liu and Sun (2015) did not find any major change in the quality of reporting information. They suggested that the level of discretionary accruals, value relevance, and earnings persistence did not change after implementing IFRS. This is in line with Paananen (2008), who compared the earnings quality before and after IFRS was adopted in Sweden. They found that there was no improvement in the accounting quality. Callao, Jarne, and Lainez (2007) also noticed no difference in value relevance among companies that adopted Spanish GAAP compared to those that are based on IFRS.

Some studies proved that adopting high-quality standards does not guarantee high-quality accounting information. Other additional factors should be considered in determining the accounting quality. Procházka and Pelák (2015) and Lourenço and Branco (2015) showed that countries require enforcement regimes, along with company incentives, to adopt the standards effectively. In other words, high-quality standards are not successful solely in improving accounting standards to be of the highest

quality. In Mexico, Eiler, Miranda-Lopez, and Tama-Sweet (2022) found that adopting IFRS contributes to lower earnings management, yet strong enforcement aid is needed to implement the new accounting standards.

In the Egyptian literature, it is mentioned that there are other factors that control the accounting standards and the accounting quality in Egypt. Ebaid (2016) compared the financial reporting quality under both EAS and IFRS and found that since adopting IFRS, financial reporting quality had inclined while earnings management declined. Ebaid (2016) also found that the institutional features of the Egyptian market (such as political factors, banks, and the tax system) could reduce the accounting quality improvement resulting from the adoption of the higher quality IFRS. During that time, there was no implementation of an effective system that enforced company standards or made them mandatory, and they had no tools to protect investors. As a result, adopting IFRS standards with the hope of increasing the quality of accounting and finance was not successful in Egypt. Mahmoud (2018) illustrated that the new EAS had a negative connection with the quality of financial statements.

Based upon this line of argument, the research hypothesis could be formulated as follows:

*H1: There is an obvious relationship between IFRS and earnings quality.*

### 2.3. Earnings quality and stock price volatility

Because investors are risk-averse, they give great attention to the volatility of stock prices, as it reflects risk (uncertainty) in the financial market (Ebeid & Alkholi, 2004). The volatility of stock prices occurs because of variation between actual cash flow, discount rate, or both, and the expectations of investors (Sadka, 2007). Firms' earnings rather than dividends are preferred to be used to expect future cash flow because it reflects companies' actual profitability and performance; hence, enables assess the ability of companies to distribute dividends (Sadka, 2007). Increasing the quality of earnings will enable investors to evaluate company performance fairly, and they will accurately be able to predict future operating performance and assess the firm value (Jing, 2007). Improving the prediction ability of investors makes them react less and thereby reduces the volatility of stock prices (Beuselincx, Joos, Khurana, & Meulen, 2010).

Wongchoti, Tian, Hao, Ding, and Zhou (2021) examined the impact of earnings quality on the stock price crash risk in China and found that better earnings quality is associated with less stock price volatility. Mitra (2016) examined the relationship between earnings quality and firm-specific return volatility for 1490 Japanese manufacturing firms and found that greater information asymmetry leads to high stock price volatility. Mitra (2016) documented that firms that operate in uncertain environments and firms whose managers use their discretion over accruals opportunistically are most likely to have high firm-specific return volatility. Also, Chen, Huang, and Jha (2012) showed that earnings quality and firm-specific return volatility have a negative relationship. This paper indicates that the negative association between earnings

quality and stock price volatility returns to higher earnings quality. High quality of earnings will reduce stock price volatility by eliminating informational uncertainty.

Jiang and Lee (2006) show that companies tend to release less information when their future earnings look bleak, thus investors will hesitate, and the stock return volatility will incline. Furthermore, Pástor and Pietro (2003) state that when managers change earnings through their own decision, investors will not trust the outlook of the firm's future, thus increasing volatility.

Previous studies (Dechow, Ge, & Schrand, 2010; Fadiran & Olowookere, 2016; Hung & Van, 2020) proved the positive and significant effect of earnings on stock prices and consider it as one of the most significant determinants of stock prices. They refer to earnings per stock as one of the accounting variables that measure the firm performance and investors pay the most attention to it to measure and expect future corporate performance and profitability and evaluate to what extent actual earnings match their expectations and investment decisions (Isidro & Dias, 2017). The stock price will most likely decline if the company doesn't achieve the projected earnings, even if it is considered the most profitable period, and similarly, the company may lose. However, the stock price is going up because the losses are less than expected.

The firm's stock valuation does not depend only on earnings per share, but also on the future performance expectations and its earnings reliability expectations, which depend on the quality of these earnings (Domingues, Cerqueira, & Brandão, 2015). Therefore, it is clear that there is a strong significant association between earnings quality and the movements of stock price. High-quality earnings are not a final product, but it is an input used as a tool to accurately forecast future earnings, and therefore facilitate the evaluation of stocks (Loh & Mian, 2006).

High earnings quality will minimize information asymmetry as it provides more information about the feature of a firm's financial performance, which is relevant to a specific decision, consequently enabling investors to expect future earnings easily and accurately. This reduces the variation in expectations and thus contributes to the stability of stock prices. If the quality of information is poor, there is uncertainty about the future earnings of firms, leading to an increase in stock price volatility (Domingues et al., 2015).

Based on such results regarding the relationship between EQ and SPV, the research hypothesis could be formulated as follows:

*H2: There is an obvious relationship between earnings quality and stock price volatility.*

### 2.4. IFRS and stock price volatility

The nature of the connection between IFRS and stock price volatility depends on how IFRS adoption affects earnings quality. According to the literature, stock price volatility occurs because of a mismatch between investors' expectations about future earnings and the actual results. Thus, high earnings quality reduces the volatility of stock price because investors will be able to predict the firms' future

earnings accurately, which minimizes this variance. Therefore, if IFRS adoption enhances the earnings quality; the stock price volatility would be reduced and vice versa.

Nurleli and Wibisono (2021) find that by applying IFRS, stock price volatility simultaneously influences the stock return. Negi, Srivastava, and Bhasin (2014) suggest that IFRS could lead to the equity market being valued correctly, which could reduce the risk of less-informed investors becoming involved. This, in turn, will decrease the volatility of stock prices.

Lambertides and Mazouz (2013) took a sample of 1,187 companies from 20 different European countries that had adopted IFRS in 2005 following the EU mandate, and they tested how adopting the standards affected the volatility, noise trading, and efficiency of information of underlying stock. The results show that in terms of information production, the quality had enhanced, and in terms of measurement errors, it had decreased. Moreover, adopting IFRS had improved information efficiency and had positively played a part in the company's market stability.

Moreover, Dasgupta, Gan, and Gao (2010) argued that after adopting IFRS, firm-specific information becomes available. As a result, participants will be able to predict future firm-specific events, along with the events that happen in such markets. They will no longer be surprised in such a way that the stock price will be more stable (less volatility).

Beuselink et al. (2010) results are in line with Dasgupta et al. (2010) who suggested that the new information not only helps investors in anticipating future events but also helps them to foresee if these events will resurface in the future. Therefore, the non-reaction of investors makes the stock price more stable.

On the contrary, there have been studies that have found evidence that IFRS does not benefit the capital market and if it does, it is limited.

Daske et al. (2008) illustrated that any capital market benefit is not solely due to IFRS adoption. IFRS standards cannot stand alone to make accounting information more accurate, and a country's enforcement control, along with the company's incentive to present higher quality information is needed alongside it (Ball et al., 2003). Durnev and Kim (2005), Francis et al. (2005), Hope, Jin, and Kang (2006), and Burghstahler, Hail, and Leuz (2006) provide evidence that supports this debate. Burghstahler et al. (2006) found that an organization's reporting incentives and a country's guidance on how to enforce standards work together in achieving high-quality financial reports.

Daske et al. (2008) find that capital market benefits are present only in countries where law application is strong and where companies have incentives, to be frank. Thereby, IFRS by itself does not affect information quality or stock price movements.

Moreover, IFRS adoption may result in lower quality financial reporting information, which will increase uncertainty and increase stock prices' volatility. Ball (2006) suggested that IFRS are principle-based and as a result, there is a lack of detailed implementation guidance, which offers

greater flexibility to managers, and this will result in high earnings management. Also, Daske et al. (2008) found that the potential variation of the implementation of IFRS would lead to increase opportunistic management discretion. IFRS encourages managers to take advantage of their knowledge, thus there is an increase in earning management (Callao & Jarne, 2010). High earnings management will not enable investors to correctly anticipate the future financial performance of a company, which results in instability of stock prices.

The events from the literature provide mixed results, which motivates the researchers to test the connection between IFRS and stock price volatility in the Egyptian stock market. Thus, the research hypothesis is as follows:

*H3: There is an obvious relationship between IFRS and stock price volatility.*

### 3. RESEARCH METHODOLOGY

#### 3.1. Sample selection

The study's sample is drawn from the annual reports of the Egyptian Exchange (EGX) 100 non-financial companies for years (2013-2018). Years 2013-2014 represent the period prior to IFRS adoption, and years 2017-2018 represent the period following IFRS adoption and prior to COVID-19. COVID-19 has significantly affected financial markets all around the world, and it may have implicated companies preparing financial statements as per IFRS. Accordingly, 2019 and 2020 are excluded. This is considered one of the study's limitations.

The selected sample includes 46 publicly listed firms on the Egyptian stock exchange, after excluding financial services companies (e.g., banks and insurance companies) as they are subjected to different accounting regulations and disclosure requirements, making it difficult to estimate the reported earnings quality.

Non-December 31 fiscal year-end companies are also excluded to ensure that there is uniformity amongst the sample firms. Moreover, to make sure that any variations observed in variables have been attributed to IFRS being adopted, a sample has been constructed using the same companies, as well as standardizing the company-year observations both before and after IFRS adoption. Firms with insufficient data are also excluded from calculating any independent variables and firms trading in foreign currency.

Because the modified Dechow-Dichev model, which is used to measure the quality of reported earnings, requires the availability of cash flow data for one year before and after the selected period, the sample is restricted to only two years after the adoption of IFRS (i.e., 2017 and 2018). Firms started to adopt IFRS in 2016, so this year is excluded as data from 2015 will be required, which is in the period before IFRS. Also, the study is limited until the year 2018. The sample selection procedures, as well as the final sample size, are summarized in Table 1.

**Table 1.** Sample description

<i>Sample selection procedure</i>	
EGX 100	100
<i>Less</i>	
Banks and other financial services	19
Firms with non-December 31 fiscal year	19
Firms with insufficient data	9
Firms trading in foreign currency	7
Total sample size	46

### 3.2. Data collection

All the required data (i.e., the firms' financial statements and high and low stock prices) was obtained from the EGX and the annual disclosure books published by the EGX. The annual disclosure book is an annual publication that is made available by the Egyptian stock exchange.

### 3.3. Variables measurement

Table 2 shows the research variables and measurements used in testing the research hypotheses and achieving its main objective.

**Table 2.** Variables definition and measurement

<i>Variable</i>	<i>Definition</i>	<i>Measurement</i>
<i>Dependent variable</i>		
<i>SPV</i>	Stock price volatility	Calculated by dividing range highest price of stock minus lowest stock price by average of lowest and highest share prices, and then squared
<i>EQ</i>	Earnings quality	The absolute value of the residual estimated from the modified Dechow-Dichev (2002) model
<i>Independent variable</i>		
<i>IFRS</i>	International financial reporting standards	A dummy variable coded 1 for observations in the post-IFRS period and 0 in the pre-IFRS period
<i>Control variable</i>		
<i>SIZE</i>	Firm size	Natural log of total assets
<i>ROA</i>	Return on assets	Net income divided by total assets
<i>LEV</i>	Firm leverage	Total liabilities divided by total assets
<i>GROWTH</i>	Firm growth	The assets in year $t$ minus assets in year $t-1$ and scaled by assets in year $t-1$
<i>MB</i>	Market-to-book value ratio	The market value of equity divided by the book value of equity
<i>LOSS</i>	Firm losses	Dummy variable takes the value of 1 if net income < 0, and 0 otherwise

*Measuring market volatility (MV):* Market volatility is measured by stock prices. SPV is the dependent variable whose measurement follows Parkinson (1980), which considers one of the first and widely accepted extreme value methods of estimating volatility: the greatest stock price of the year minus the least, e.g., the range is divided by the average of the lowest and highest share prices, and then it is squared. In the end, the square root is applied to transform the variance into a standard deviation comparable. The researchers use the extreme value method as it is much superior to using the yearly closing and opening prices in the sense that, it incorporates extreme price fluctuations. Moreover, applying this method is easy in practice since the highs and lows of prices are readily available for every stock.

*Measuring earnings quality (EQ):* The researchers use an accrual quality measure based on the Dechow and Dichev (2002) model, as modified by Francis et al. (2005), to measure the earnings quality. This approach adopts the idea that a manager's view on past, future, and present cash flows is shown

through accruals. Some estimation errors in accruals can affect their ability to reflect such a pattern, regardless of the management intent. This approach takes into consideration both intentional errors resulting from opportunistic use of accruals raised from earnings management and unintentional errors resulting from the misuse of standards, environmental uncertainty, and management lapses.

In conformity with previous studies, purposeful and unintentional errors account for the accrual quality, and this is due to a company's characteristics and reporting mechanisms. Dechow and Dichev (2002) recognized that the effect of intentional and unintentional errors doesn't impact accrual quality since both will negatively affect accrual quality and reduce earnings quality, so the source of errors is not relevant in this approach.

Accrual quality is measured by the degree to which accruals blend into operating cash flow realization, where low accrual quality is due to a poor match. Specifically, the following model is used as the proxy for accruals and earnings quality:

$$TCA_{j,t} = a_0 + a_1 CFO_{j,t-1} + a_2 CFO_{j,t} + a_3 CFO_{j,t+1} + a_4 \Delta REV_{j,t} + a_5 PPE_{j,t} + \varepsilon_{j,t} \quad (1)$$

where,

$TCA_{j,t}$  = total current accruals measured as  $NIBE_{j,t} - CFO_{j,t} + DEPN_{j,t}$ ;

$NIBE_{j,t}$  = net income before extraordinary items at year  $t$  for firm  $j$ ;

$DEPN_{j,t}$  = depreciation and amortization expense at year  $t$  for firm  $j$ ;

$CFO_{j,t}$  = cash flow from operations at year  $t$  for firm  $j$ ;

$CFO_{j,t-1}$  = cash flow from operations at year  $t-1$  for firm  $j$ ;

$CFO_{j,t+1}$  = cash flow from operations at year  $t+1$  for firm  $j$ ;

$\Delta REV_{j,t}$  = annual change in sales revenues of firm  $j$  between years  $t$  and  $t-1$ ;

$PPE_{j,t}$  = growth value of property plant and equipment of firm  $j$  in year  $t$ ;  
 $\varepsilon_{j,t}$  = error term (residual).

Residuals from equation (1) represent current accruals that have an error in their estimates and are not due to operating cash flows, change in revenue, or the level of  $PPE$ .

The standard deviation of the residuals is an inverse measure of earnings quality, where the higher the standard deviation of residuals, the poorer accruals and earnings quality (Francis et al., 2005).

**Control variables:** According to the literature (Lashgari & Ahmadi, 2014; Mitra, 2016; Cerqueira & Pereira, 2015), several control variables were included in the applied research model to control their effect on the firm stock prices volatility as follows:

- Firm size ( $SIZE$ ). Obeidat (2021) and Ali, Noor, Khurshid, and Mahmood (2015) argued that larger companies are more prone to participate in earnings management because they are under pressure to keep investors and financial analysts happy. Therefore, there is a positive connection when it comes to an organization's size and earnings management. However, Kim, Chung, and Firth (2003), Lusi and Swastika (2013), and Nalarreason, Sutrisno, and Mardiaty (2019) stated that larger companies have high earnings quality because of their strong internal control, high litigation risk, and the fact they have 4 major companies conducting their audits. As a result, earnings management decreases. On the contrary, Llukani (2013) and Bassiouny, Soliman, and Ragab (2016) find that a company's size has a negative relationship with earnings quality.

- Return on assets ( $ROA$ ) is a ratio to assess the efficiency of the company in managing its assets, and if the value of  $ROA$  is higher, the company has larger profitability. As it is regularly used amongst companies to monitor if managers are performing

efficiently,  $ROA$  may encourage management to increase earnings out of the interest of getting larger bonuses (Wolf, Stephenson, Knoblauch, & Novakovic, 2016).

- Firm leverage ( $LEV$ ) could affect earnings quality positively or negatively. On the one hand, companies with a high level of leverage have high earnings quality because of the tighter control from creditors; therefore, managers will be less likely to participate in earnings management (Afza & Rashid, 2014; Lazzem & Jilani, 2018; Nalarreason et al., 2019). On the other hand, high leveraged firms could increase their accrual earnings management to avoid debt covenant violation (Beatty & Weber, 2003; Dichev & Skinner, 2002).

- $GROWTH$ . Houqe, Zijl, Dunstan, and Karim (2012) stated that the growth of firms' capital needs could increase the potential managing of reported earnings to attract more investors to match these needs, which negatively affects earnings quality.

- Market-to-book value ( $MB$ ). Managers of highly valued firms have strong incentives to manipulate earnings upward to maintain the increase in a firm's market value (Raoli, 2013; Badertscher, 2011).

- Firm losses ( $LOSS$ ). There is a negative relationship between  $LOSS$  and earnings quality.  $LOSS$  is considered an indicator of bankruptcy risk, which increases the management incentives to manipulate earnings (Wang, 2006).

### 3.4. Model specifications for testing hypotheses

The regression model equations used to test the research hypotheses are as follows:

- *IFRS and earnings quality.* To test the impact of IFRS on earnings quality, the following regression model is estimated:

$$EQ_{j,t} = b_0 + b_1IFRS + b_2SIZE_{j,t} + b_3ROA_{j,t} + b_4LEV_{j,t} + b_5GROWTH_{j,t} + b_6MB_{j,t} + b_7LOSS_{j,t} + \varepsilon_{j,t} \quad (2)$$

where,

$EQ_{j,t}$  = earnings quality measured as the absolute value of the residuals estimated from equation (1);

$IFRS$  = a dummy variable coded 1 for observations in the post-IFRS adoption period and 0 in the pre-IFRS adoption period;

$SIZE_{j,t}$  = natural log of total assets at  $t$  for firm  $j$ .

$ROA_{j,t}$  = net income at  $t$  divided by average total assets at  $t$  for firm  $j$ ;

$LEV_{j,t}$  = firm leverage at  $t$  for firm  $j$ , measured by total liabilities divided by total assets;

$GROWTH_{j,t}$  = growth rate in sales at  $t$  for firm  $j$ , measured as the sales in year  $t$  minus sales in the year  $t-1$  and scaled by sales in year  $t-1$ ;

$MB_{j,t}$  = market-to-book value ratio at  $t$  for firm  $j$ ;

$LOSS_{j,t}$  = dummy variable takes the value of 1 if net income < 0, and 0 otherwise.

$\varepsilon_{j,t}$  = error term (residual).

- *Earnings quality and stock prices:* To test the impact of earnings quality on the firm stock prices volatility, the following regression model is estimated as follows:

$$SPV_{j,t} = c_0 + c_1EQ_{j,t} + c_2LEV_{j,t} + c_3SIZE_{j,t} + c_4GROWTH_{j,t} + c_5TE + \varepsilon_{j,t} \quad (3)$$

where,

$SPV_{j,t}$  = stock price volatility at year  $t$  for firm  $j$ ;

$TE$  = a dummy variable coded one for observations in the post-IFRS adoption period and zero in the pre-IFRS adoption period.

All other variables ( $EQ_{j,t}$ ,  $LEV_{j,t}$ ,  $SIZE_{j,t}$ ,  $GROWTH_{j,t}$ ) are previously defined above.

## 4. RESULTS

### 4.1. Descriptive statistics and correlation matrix

Descriptive statistics for earnings quality, IFRS, stock price volatility, and other control variables included in equations (2) and (3) are reported in Table 3. Panel A represents the pre-IFRS period (2013-2014) and Panel B of Table 3 for the post-IFRS period (2017-2018).



Table 3. Descriptive statistics

Panel A: Pre-IFRS adoption (2013-2014)							
	SPV	EQ	SIZE	ROA	LEV	GROWTH	MB
Mean	0.805450	0.039632	8.991560	0.062060	0.371871	0.036843	2.866081
Median	0.805700	0.032077	9.030496	0.025444	0.350092	0.026163	1.787500
Maximum	1.101000	0.149121	10.33437	0.150502	0.849724	0.258688	8.595000
Minimum	0.439900	0.000281	7.370583	-0.089220	0.000326	-0.157590	0.256000
Std. Dev.	0.133025	0.034862	0.745730	0.051789	0.224583	0.080617	2.273914
Skewness	-0.221553	1.159076	-0.383964	0.384430	0.294515	0.273626	0.915218
Kurtosis	3.261920	3.705395	2.609603	2.751724	2.164511	3.537671	2.673250
Jarque-Bera	0.993546	22.01778	2.782966	2.447948	3.918744	2.207157	12.96473
Probability	0.608491	0.000017	0.248706	0.294059	0.140947	0.331682	0.001530
Panel B: Post-IFRS adoption (2017-2018)							
	SPV	EQ	SIZE	ROA	LEV	GROWTH	MB
Mean	0.824970	0.041069	9.164847	0.195265	0.453666	0.056689	2.453809
Median	0.816450	0.029774	9.228732	0.021395	0.476354	0.048404	1.432500
Maximum	1.201600	0.129331	10.98351	0.152886	1.027268	0.243396	8.580000
Minimum	0.535000	0.001278	7.204945	-0.079990	0.003303	-0.147120	0.356000
Std. Dev.	0.143054	0.032366	0.801866	0.046255	0.242626	0.090792	2.255340
Skewness	0.251561	0.969514	-0.126440	0.313688	0.027086	0.055456	1.252752
Kurtosis	2.422452	3.195472	2.753591	3.250897	2.498094	2.329079	3.502593
Jarque-Bera	2.200101	14.24264	0.467495	1.712058	0.955667	1.734135	24.48808
Probability	0.332854	0.000808	0.791562	0.424846	0.620125	0.420182	0.000005

As shown in Table 3, there is no significant change in the quality of reported earnings before and after the IFRS adoption, as the mean value of *EQ* pre-IFRS adoption is 0.039 while the mean value post-IFRS adoption is 0.041, and the standard deviation of residual value of earnings quality in 2013-2014 is 0.034 and in 2017-2018 is 0.032.

The mean value of *SPV* in 2013-2014 is 0.80 and the standard deviation of stock price volatility is 0.13. Moreover, the mean value of *SPV* in 2017-2018 is 0.82 and the standard deviation of stock price volatility is 0.14. Therefore, there is no significant change in the volatility of the stock price.

The *ROA* mean value is 0.06 before IFRS

adoption and 0.19 after IFRS adoption, which considers an indicator of the profitability of firms.

Table 3 also revealed the normal distribution of the research variables in terms of *SPV*, *SIZE*, *ROA*, *LEV*, and *GROWTH* by using the Jarque-Bera test at a significant level greater than 0.05. However, the research variables, in terms of *EQ* and *MB*, are not normally distributed, since the significance of the Jarque-Bera statistic is less than 0.05.

Table 4a reports Pearson correlations between all independent and dependent variables included in equation (2) and Table 4b for all variables in equation (3).

Table 4a. Pearson correlation matrix for equation (2)

Probability	EQ	IFRS	SIZE	ROA	LEV	GROWTH	MB	LOSS
<i>EQ</i>	1.000000							
	—							
<i>IFRS</i>	0.261480	1.000000						
	0.0001***	—						
<i>SIZE</i>	-0.214494	0.111819	1.000000					
	0.0038**	0.1351	—					
<i>ROA</i>	0.131509	-0.069416	0.064241	1.000000				
	0.0785	0.3545	0.3916	—				
<i>LEV</i>	0.001478	0.173262	0.310869	-0.131670	1.000000			
	0.9843	0.0200*	0.0000***	0.0781	—			
<i>GROWTH</i>	0.121793	0.115449	0.104492	0.221366	0.123682	1.000000		
	0.1034	0.1228	0.1627	0.0028*	0.0981	—		
<i>MB</i>	0.143046	-0.091152	0.256754	0.287478	0.145969	0.217545	1.000000	
	0.0554*	0.2236	0.0005***	0.0001***	0.0506*	0.0034**	—	
<i>LOSS</i>	-0.122352	0.013029	0.219981	0.608333	-0.084572	0.371088	0.232287	1.000000
	0.1018	0.8622	0.0030**	0.0000***	0.2590	0.0000***	0.0017**	—

Note: \*\*\*, \*\*, and \* denote that correlation is significant at a level less than 0.001, 0.01, and 0.05.

Table 4a, which represents the correlation matrix for all variables in equation (2), shows that:

- *IFRS* has a significantly positive correlation with the residual value of earnings reporting quality (0.261), which indicates that it is negatively correlated with *EQ*.
- It also shows that the *SIZE* is negatively significant with the residual of reported earnings quality (-0.214); thereby, it is positively correlated with *EQ*.
- Finally, *MB* is significantly and positively

correlated with the residual of reported earnings quality (0.143).

- *ROA*, *GROWTH*, and *LOSS* have no significant correlation with *EQ*.

There is no multicollinearity problem since the highest correlation value between *ROA* and *LOSS* is 0.60, and a multicollinearity problem exists when the coefficient of correlation among the independent variables is greater than 0.90 (Hair, Anderson, Tatham, & Black, 2010).

**Table 4b.** Pearson correlation matrix for equation (3)

Probability	SPV	EQ	LEV	SIZE	GROWTH	TIME EVENT
SPV	1.000000					
	—					
EQ	0.339248	1.000000				
	0.000***	—				
LEV	0.278406	0.001478	1.000000			
	0.0029**	0.9843	—			
SIZE	-0.074219	-0.214494	0.310869	1.000000		
	0.3221	0.0038	0.0000	—		
GROWTH	-0.257523	0.121793	0.123682	0.104492	1.000000	
	0.0031**	0.1034	0.0981	0.1627	—	
TIME EVENT	0.165773	0.096522	0.165155	0.116183	0.118515	1.000000
	0.0250*	0.1924	0.0251	0.11163	0.1091	—

Note: \*\*\*, \*\*, and \* denote that correlation is significant at a level less than 0.001, 0.01, and 0.05.

Table 4b, which represents the correlation matrix for all variables in equation (3) shows that:

- There is a significant correlation between *SPV* and *EQ*. Stock price volatility is positively correlated with the residual value of earnings quality, so there is a negative relationship between *SPV* and *EQ*.
- *LEV* shows a positive significant relationship with *SPV* (0.2784).
- However, a firm's growth and *SPV* are inversely related (-0.2575). There is a significant positive correlation between *SPV* and *TIME EVENT*.
- *SIZE* has no significant correlation with *SPV*.
- There is no multicollinearity problem since the highest correlation value between *LEV* and size is 0.31.

**4.2. Multivariate analysis**

Table 5a presents the results of estimating the Dechow and Dichev (2002) model as modified by Francis et al. (2005) using panel least squares for equation (1).

Table 5b shows the result of the regression model estimating the impact of IFRS on earnings quality for equation (2).

Table 5c presents the result of the regression model estimating the impact of earnings quality on the firm stock price volatility for equation (3).

**Table 5a.** Total panel estimation fixed-effect model for equation (1)

Variable	Coefficient	Std. Error	T-statistic	Prob.
Intercept	0.023938	0.008331	2.873447	0.0047
<i>CFO<sub>t-1</sub></i>	0.201957	0.092779	2.176752	0.0313
<i>CFO<sub>t</sub></i>	-0.329157	0.076609	-4.296574	0.0000
<i>CFO<sub>t+1</sub></i>	0.007024	0.064691	0.108585	0.9137
$\Delta REV$	0.181315	0.076531	2.369182	0.0193
<i>PPE</i>	-0.016085	0.018539	-0.867631	0.3872
R-squared	0.539523		Mean dependent variable	0.022720
Adjusted R-squared	0.351790		S.D. dependent variable	0.058075
S.E. of regression	0.046757		Akaike info criterion	-3.048161
Sum squared resid.	0.284205		Schwarz criterion	-2.104647
Log-likelihood	334.4308		Hannan-Quinn criterion	-2.665743
F-statistic	2.873888		Durbin-Watson statistic	2.199756
Prob.(F-statistic)	0.000001			

$$TCA = 0.201957464229 * CFO_{t-1} - 0.329157265624 * CFO_t + 0.00702447300609 * CFO_{t+1} + 0.181314923486 * REV - 0.0160845868375 * PPE + 0.0239375548084 \tag{4}$$

**Table 5b.** Total panel estimation fixed-effect model for equation (2)

Variable	Coefficient	Std. Error	T-statistic	Prob.
<i>EQ</i>	0.179673	0.065980	2.723156	0.0074
<i>IFRS</i>	0.007846	0.001737	4.516497	0.0000
<i>SIZE</i>	-0.014751	0.007539	-1.956565	0.0526
<i>ROA</i>	0.167523	0.017618	9.508627	0.0000
<i>LEV</i>	-0.023978	0.010018	-2.393580	0.0181
<i>GROWTH</i>	0.062198	0.035715	1.741487	0.0840
<i>MB</i>	0.004174	0.001110	3.761491	0.0003
<i>LOSS</i>	-0.023979	0.006434	-3.726865	0.0003
R-squared	0.461944		Mean dependent variable	0.040350
Adjusted R-squared	0.247562		S.D. dependent variable	0.033551
S.E. of regression	0.029103		Akaike info criterion	-3.999088
Sum squared resid.	0.108415		Schwarz criterion	-3.076678
Log-likelihood	411.9179		Hannan-Quinn criterion.	-3.625091
F-statistic	2.154769		Durbin-Watson statistic	2.410613
Prob.(F-statistic)	0.000278			

$$EQ = 0.00784577664332 * IFRS - 0.0147506185839 * SIZE + 0.167522841875 * ROA - 0.0239782314036 * LEV + 0.0621977164482 * GROWTH + 0.00417358592213 * MB - 0.0239791911135 * LOSS + 0.179672999487 \tag{5}$$

Table 5c. Total panel estimation fixed-effect model for equation (3)

Variable	Coefficient	Std. Error	T-statistic	Prob.
SPV	0.747286	0.213962	3.492619	0.0007
EQ	0.368649	0.076967	4.789685	0.0000
LEV	0.154604	0.035292	4.380652	0.0000
SIZE	-0.000611	0.023232	-0.026314	0.9790
GROWTH	-0.111566	0.047695	-2.339151	0.0209
TIME EVENT	0.016436	0.007296	2.252738	0.0260
R-squared	0.271395		Mean dependent variable	0.815210
Adjusted R-squared	0.262711		S.D. dependent variable	0.138091
S.E. of regression	0.139391		Akaike info criterion	-0.866219
Sum squared resid.	2.487014		Schwarz criterion	0.056191
Log-likelihood	129.9597		Hannan-Quinn criterion.	-0.492222
F-statistic	2.070336		Durbin-Watson statistic	2.211318
Prob.(F-statistic)	0.000528			

$$SPV = 0.368649265442 * EQ + 0.154603930975 * LEV - 0.000611319940453 * SIZE - 0.111566344916 * GROWTH + 0.747286430146 \quad (6)$$

#### 4.2.1. The coefficient of determination

For equation (1), as shown in Table 5a, consistent with Dechow and Dichev (2002), the coefficient of the current period cash flow (*CFO*) is negative (-0.329).

- While the coefficient of the cash flow of the previous period ( $CFO_{t-1}$ ) is positive (0.201). This indicates that total current accruals (*TCA*) are negatively affected by current period cash flows and positively affected by previous period cash flows.

- The coefficient of the change of revenues ( $\Delta REV$ ) is positive (0.181), which indicates that higher changes in revenue lead to higher total current accruals.

- All independent variables in the model (except for  $CFO_{t+1}$  and *PPE*) are significantly associated with *TCA* at 1% and 5% significant levels (p-value < 0.01; p-value < 0.05).

- The model is also significant at a 1% level (p-value < 0.01) with an adjusted R-squared of 0.351, which indicates that the model explains 35.17% of variations in *TCA*.

Regarding equation (2), as shown in Table 5b, the positive coefficient of *IFRS* (0.0078) with residual value indicates that *IFRS* decreases earnings quality.

- The coefficient of firm size (*SIZE*) is negative with a residual of -0.014, which indicates that larger firms report high-quality earnings.

- The coefficient of the *ROA* is positive (0.167) with residual. High *ROA* could increase managers' motivation to manipulate earnings to obtain large bonus amounts.

- The negative coefficient of the firm leverage (*LEV*) (-0.023) with residual indicates that highly leveraged firms provide high-quality reported earnings because firms with high leverage are monitored and controlled by debt-holder.

- Firm losses (*LOSS*) are negative (-0.023979) with residual, which indicates that firms reporting losses have high-quality earnings. This is consistent with Hope, Thomas, and Vyas (2013).

- All independent variables in the model are significantly associated with earnings quality (*EQ*) at a 1% and 5% significant levels (p-value < 0.01; p-value < 0.05) except *GROWTH*.

- The model is also significant at a 1% level (p-value < 0.01) with an adjusted R-squared of 0.2475, which indicates that the model explains 24.75% of variations in earnings quality (*EQ*).

Table 5c for equation (3) shows that the coefficient of earnings quality is significant at

p-value < 0.05, which indicates that earnings quality has a significant impact on the volatility of the stock price.

- The positive coefficient of the residual value (0.36) with stock price volatility indicates that low earning quality increases stock price volatility.

- Moreover, the significant positive coefficient of *LEV* (0.15) at p-value < 0.05 indicates that highly leveraged firms have high stock price volatility.

- Moreover, the coefficient of firm growth is significantly negative (-0.111566) at p-value < 0.05, which indicates that firms with a high level of growth have lower stock price volatility.

- Also, there is a significant positive coefficient of *TIME EVENT* (0.016) with stock price volatility which indicates that *IFRS* adoption increases stock price volatility.

- The model is significant at a p-value < 0.05 with an R-squared of 27.13%, which indicates that the model explains 27.13% of variations in the stock price volatility (*SPV*).

#### 4.2.2. F-test

According to Table 5a for equation (1), since the value of the F-test is 2.87, with significance at the 0.001 level, then the independent variables are accepted in the model and have affected the level of *TCA* and the results can be applied.

In Table 5b for equation (2), since the value of the F-test is 2.15, with significance at the 0.001 level, then the independent variables are accepted in the model and have affected the level of *EQ* and the results can be applied.

In Table 5c for equation (3), since the value of the F-test is 2.07, with significance at the 0.001 level, then the independent variables are accepted in the model and have affected the stock price volatility and the results can be applied.

#### 4.2.3. The Durbin-Watson test statistic (*dU*)

For equation (1) in Table 5a, the Durbin-Watson test statistic tests the null hypothesis that the residuals from an ordinary least-squares regression are not auto correlated against the alternative that the residuals follow an AR1 process. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. Since the test

statistic value is 2.199 for equation (1) in Table 5a, 2.41 for equation (2) in Table 5b, and 2.21 for equation (3) in Table 5c, are greater than  $dU$ , the null hypothesis would not be rejected and indicates non-autocorrelation.

#### 4.2.4. Theil's inequality coefficient ( $U$ )

For equation (1) in Figure A.1,  $U$  Theil's inequality measures the accuracy of the estimates of the fixed-effects model. It lies between zero and one, where zero indicates a perfect fit. According to the Figure A.1, since a value reaches 0 (35%), indicating the goodness of fit of the panel model, at a percent of not less than 91%.

For equation (2) in Figure A.2,  $U$  Theil's inequality value lies between 0 and 1, where 0 indicates a perfect fit. Since a value reaches 0 (24%),

indicating the goodness of fit of the panel model, at a percent of not less than 91%.

For equation (3) in Figure A.3,  $U$  Theil's inequality value lies between 0 and 1, where 0 indicates a perfect fit. Since a value reaches 0 (7%) indicating the goodness of fit of the panel model, at a percent of not less than 91%.

#### 4.2.5. Group unit root test

Tables 6a, 6b, and 6c reveal the stationary of the time series of the return,  $\ln TCA$ ,  $CFO_{t-1}$ ,  $CFO_t$ ,  $CFO_{t+1}$ ,  $\Delta REV$ ,  $PPE$ ,  $\ln EQ$ ,  $IFRS$ ,  $SIZE$ ,  $ROA$ ,  $LEV$ ,  $GROWTH$ ,  $MB$ ,  $LOSS$ , and  $\ln SPV$ ,  $EQ$ ,  $LEV$ ,  $SIZE$ ,  $GROWTH$ ,  $TIME EVENT$ , based on the constant level, according to the following criteria: IPSW, PP, ADF, at a significant level less than 0.05.

Table 6a. Group unit root test for equation (1)

Method	Statistic	Prob.**	Cross-sections	Observations
<b>Null: Unit root (assumes common unit root process)</b>				
Levin, Lin, and Chu $t^*$	-25.9859	0.0000	6	1097
<b>Null: Unit root (assumes individual unit root process)</b>				
Im, Pesaran, and Shin W-statistic	-22.4376	0.0000	6	1097
ADF — Fisher Chi-square	381.844	0.0000	6	1097
PP — Fisher Chi-square	369.443	0.0000	6	1098

Note: \* Levin, Lin, and Chu (2002). \*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Table 6b. Group unit root test for equation (2)

Method	Statistic	Prob.**	Cross-sections	Observations
<b>Null: Unit root (assumes common unit root process)</b>				
Levin, Lin, and Chu $t^*$	-22.8816	0.0000	7	1252
<b>Null: Unit root (assumes individual unit root process)</b>				
Im, Pesaran, and Shin W-statistic	-20.7233	0.0000	7	1252
ADF — Fisher Chi-square	363.278	0.0000	7	1252
PP — Fisher Chi-square	341.445	0.0000	7	1253

Note: \* Levin et al. (2002). \*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Table 6c. Group unit root test equation (3)

Method	Statistic	Prob.**	Cross-sections	Observations
<b>Null: Unit root (assumes common unit root process)</b>				
Levin, Lin, and Chu $t^*$	-19.5706	0.0000	5	895
<b>Null: Unit root (assumes individual unit root process)</b>				
Im, Pesaran, and Shin W-statistic	-18.9216	0.0000	5	895
ADF — Fisher Chi-square	284.895	0.0000	5	895
PP — Fisher Chi-square	282.600	0.0000	5	895

Note: \* Levin et al. (2002). \*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

## 5. DISCUSSION OF THE RESULTS

The descriptive analysis in Table 3 shows that no significant change takes place in the earnings quality nor the stock price volatility after the new modifications in the EAS. This is consistent with Mansour (2021) in Egypt, and Eiler et al. (2022) in Mexico, Hope et al. (2006), and Burgstahler et al. (2006). Then, based on the results of the correlation and multivariate analysis, for testing the research hypotheses, shown in Tables 4a and 4b, and 5b and 5c, the following can be concluded.

$IFRS$  is negatively correlated with  $EQ$ . The positive coefficient of  $IFRS$  with residual value indicates that  $IFRS$  decreases earnings quality. This result supports  $H1$  which assumes that  $IFRS$  has a significant impact on  $EQ$ . Thus,  $H1$  will be accepted. This is consistent with Ahmed et al. (2013),

Mahmoud (2018) in Egypt, and Osinubi (2020) in Nigeria. However, it is inconsistent with Barth et al. (2008), Iatridis (2010), Dimitropoulos et al. (2013), Ismail et al. (2013), Ahmed et al. (2013), Ebaid (2016), Jung (2016), and Makhsum et al. (2018), who finds that  $IFRS$  adoption increases earnings quality (positive impact), as adopting  $IFRS$  is associated with lower earnings management and higher value-relevant. The implementation of  $IFRS$  reduces information asymmetry and earnings manipulation. The success of  $IFRS$  is in enhancing the comparability of accounting information (Masadeh et al., 2017). Also, it is inconsistent with other researchers (Callao et al., 2007; Paananen, 2008; Liu & Sun, 2015; Procházka & Pelák, 2015; Lourenço & Branco, 2015; Eiler et al., 2022) that show that adopting high-quality standards has no significant impact and doesn't guarantee high-quality accounting

information without the existence of a strong country's enforcement regime and firm incentive to adopt the standard effectively. Therefore, there is no improvement in earnings quality after the IFRS adoption.

*EQ* has a significant negative impact on *SPV*. The positive coefficient of the residual value with stock price volatility indicates that low earning quality increases stock price volatility. This result supports *H2*, which suggests that earnings quality has a significant impact on stock price volatility. Accordingly, *H2* will also be accepted. This result indicates that higher earnings quality can reduce the stock price volatility, and stock price becomes more stable because of the availability of accurate earnings amounts, which enables investors to anticipate future cash flow and reduce noise trading. This result is consistent with other studies in the literature (Pástor & Pietro, 2003; Loh & Mian, 2006; Jiang & Lee, 2006; Beuselinck et al., 2010; Dechow et al., 2010; Chen et al., 2012; Domingues et al., 2015; Fadiran & Olowookere, 2016; Mitra, 2016; Isidro & Dias, 2017; Hung & Van, 2020; Wongchoti et al., 2021). They found that the poorer the quality of information could result in high uncertainty about the future earnings of firms, leading to increase stock price volatility.

*IFRS* has a significant positive impact on *SPV*. There is a significant positive coefficient of time event with stock price volatility, which indicates that IFRS adoption increases stock price volatility. This supports *H3*, which suggests that *IFRS* has a significant impact on stock price volatility. Thus, *H3* will also be accepted. This is consistent with Ball (2006), Daske et al. (2008), and Callao and Jarne (2010), who find that IFRS adoption may result in lower quality financial reporting information, which will increase uncertainty, and increase stock prices' volatility. IFRS are principle-based and lack detailed implementation guidance, which offers greater flexibility to managers, which results in high earnings management, and in turn, instability of stock prices. However, this result is inconsistent with the findings of Nurleli and Wibisono (2021), Negi et al. (2014), Lambertides and Mazouz (2013), Dasgupta et al. (2010), and Beuselinck et al. (2010), that mandatory IFRS adoption enhances the informational efficiency and contributes positively to the market stability of the adopting firms. As investors will be able to predict future firm-specific events, and the event actually happens in such markets. Then, they will no longer be surprised in such a way that the stock price will be more stable (less volatility). In addition, Ball et al. (2003), Durnev and Kim (2005), Francis et al. (2005), Hope et al. (2006), and Burgstahler et al. (2006) find that IFRS by itself does not have an effect on information quality or stock price movements.

For the control variables: *SIZE* is significantly and positively correlated with *EQ*, and this could be because of its strong internal control and its high litigation risk. This is consistent with the findings of Obeidat (2021), Nalarreason et al. (2019), Ali et al. (2015), Kim et al. (2003), and Lusi and Swastika (2013). However, this result is inconsistent with Llukani (2013) and Bassiouny et al. (2016), who find that no significant relationship between firm size and earnings quality.

*MB* is negatively correlated with *EQ*. This result is inconsistent with Badertscher (2011), and Raoli

(2013), who finds a positive relationship between a firm's market value and income-decreasing earnings management is consistent with the study.

*ROA*, *GROWTH*, *LEV*, and *LOSS* has no significant correlation with *EQ*. These results are inconsistent with Wolf et al. (2016), Houqe et al. (2012), Afza and Rashid (2014), Lazzem and Jilani (2018), Nalarreason et al. (2019), and Wang (2006), who find that *ROA*, *GROWTH*, *LEV*, and *LOSS* have an impact on *EQ*.

*LEV* shows a positive significant relationship with *SPV*. High leveraged firms have high stock price volatility because of their high risk. This is consistent with the findings of Rathgeber, Stadler, and Stöckl (2021).

However, a firm's growth and *SPV* are inversely related. Firms in the growth stage are more likely to keep the income for new investment opportunities, and greater future cash flows from new projects. It somewhat rightfully starts expecting higher-than-present returns in the future (Shah & Noreen, 2016).

There is a significant positive correlation between *SPV* and *TIME EVENTS*, which indicates that stock price volatility increases after IFRS adoption. This is consistent with Endri, Aipama, Razak, Sari, and Septiano (2021).

Firm size has no significant correlation with *SPV*. This is inconsistent with Mashayekh and Harraf (2011), who find a positive impact of firm size on *SPV*.

## 6. CONCLUSION

The research examines the impact of applying high-quality standards (IFRS) on earnings quality as a part of accounting information used by investors as an indicator of a company's performance and future cash flows and its implications on stock price volatility. This is because investors depend on stock price volatility as a vital tool to measure risks, which enables them to form their portfolios. This will affect the whole economy.

The responsible authorities in Egypt are working to make the Egyptian stock market more competitive and improve the EAS to make them more compatible with international standards. Therefore, they will attract foreign investors. The EAS have been modified in 2016 to be in accordance with IFRS.

To achieve the main objective of the research, a fixed-effect panel least square is applied to the data of 46 publicly non-financial traded firms listed in the Egyptian stock market for the years 2013–2018. In measuring the two dependent variables (*EQ* and *SPV*), the Dechow and Dichev (2002) model as modified by Francis et al. (2005) is used to measure the quality of reported earnings. To measure the stock price volatility, the researchers follow the Parkinson (1980) method of taking the extreme value of the greatest and lowest stock prices because this method is more effective than using the yearly opening and closing stock prices, which do not account for extreme fluctuations in price.

The major findings of this study show that there is a significant negative impact of IFRS adoption on earnings quality, which is in line with Ahmed et al. (2013), Mahmoud (2018) in Egypt, and Osinubi (2020) in Nigeria. This finding is consistent with *H1*, which suggests that IFRS has a significant

impact on earnings quality. Moreover, there is a positive coefficient for IFRS (0.0078) with the residual value, which indicates that IFRS decreases earnings quality. The researchers assume that this reduction resulted from the modernity of the standards' adoption, with their inherent complexity increasing the possibility of errors.

Firm size and leverage are correlated significantly positively with earnings quality. The coefficient of firm size is negative (-0.014), with the residual value indicating that larger firms report high-quality earnings; this could be because of their strong internal control. Moreover, the negative coefficient of firm leverage (-0.023) with the residual value indicates that highly leveraged firms provide high-quality reported earnings because of the greater monitoring by debtholders. However, the coefficient of the return on assets is positive (0.167) with the residual value of earnings quality as a high ROA motivates management to manipulate earnings quality.

Consistent with *H2*, which suggests that earnings quality impacts stock price volatility, which is consistent with Mitra (2016), Isidro and Dias (2017), Hung and Van (2020), and Wongchoti et al. (2021). Earnings quality does not affect stock price volatility. The stock price volatility is positively correlated (0.339) with the residual value as well as the positive coefficient of the residual value (0.36) with stock price volatility, indicating that low earnings quality increases stock price volatility. High earnings quality will enable investors to evaluate companies' performance fairly and accurately predict future operating performance. Improving the prediction ability of investors will reduce the variation between investors' expectations and actual results, thereby reducing the volatility of stock prices.

Furthermore, the significant positive coefficient of leverage with stock price volatility (0.1546) indicates that highly leveraged firms have high stock price volatility because highly leveraged firms reflect high risk. However, there is a significant negative coefficient between firm growth and stock price volatility (-0.1115), which indicates that firms with a high level of growth have lower stock price volatility. Shah and Noreen (2016) clarified that companies give a positive outlook in terms of their future cash flow from new investors when they are actively growing and seeking new investment opportunities.

Finally, the research proves that IFRS has an obvious positive impact on stock price volatility, which is consistent with *H3* that suggests that IFRS has a significant impact on stock price volatility. This result is comparable with Ball (2006), Daske et al. (2008), and Callao and Jarne (2010). This is evident through the significant positive correlation between stock price volatility and time events and the significant positive coefficient of time events (0.016) with stock price volatility, which indicates that IFRS adoption increases stock price volatility.

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According to such empirical results, earnings quality is reduced after IFRS adoption, and since low earnings quality increases stock price volatility, stock price volatility increases. Consequently, the researchers find that adopting EAS will be unnoticeable and may even negatively affect the Egyptian information environment because the modernity of standards will increase the possibility of application errors. Therefore, the researchers suggest that to enhance efficiency in the accounting information environment in Egypt, IFRS must be followed, along with legal enforcement and company incentives. Subsequently, investors will highly depend on financial statements in their investment decisions, and this will increase investors' confidence in the Egyptian stock market.

This study's limitations are as follows: First, the period covered is just 2 years before the standards modifications and 2 years after the modifications. Second, the sample, to some extent, is limited due to insufficient data. Third, the research is applied to non-financial institutions only, while the financial ones and banks are not studied due to the differences in the financial sector regulations.

The findings of this study have several implications. First, it can help and guide the standards setters in understanding that increasing the quality of the financial information doesn't depend only on the quality of the financial standards applied. However, other factors should be taken into consideration, such as the existence of strong legal enforcement and the management incentive to provide accurate financial information that fairly reflects firms' financial performance. Second, it can clarify to the financial constituencies the implications of providing high-quality information to investors through their decision-making process.

Although the primary benefit of adopting the IFRS is improved international comparability of accounting information, the negative effect of such adoption, which is increased compliance costs, should be considered. Therefore, it is recommended that the IASB and other settee bodies come together to target developing countries and find solutions to encourage such countries to comply with the IAS. In addition, we recommend that further studies be conducted to find solutions to help companies decrease their preparation costs resulting from the IFRS change.

Due to the importance of measuring stock price volatility to investors' decisions and the impact of these decisions on the development of stock markets and the growth of the economy, the researchers recommend further research to study this variable in different aspects. Further research could apply empirical studies that measure the impact of other variables such as risk and corporate governance on stock price volatility and earnings quality, especially after the COVID-19 pandemic.

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### APPENDIX

Figure A.1. Theil's inequality coefficient (U) for equation (1)

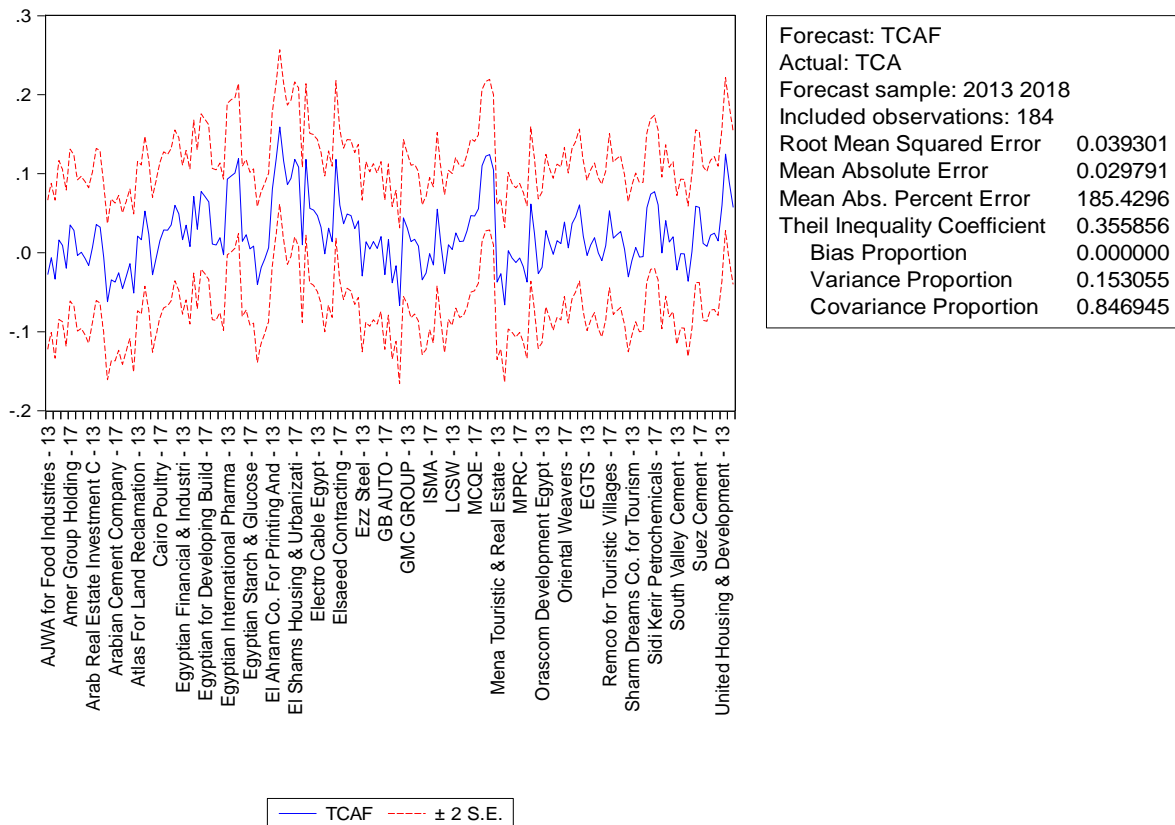


Figure A.2. Theil's inequality coefficient (U) for equation (2)

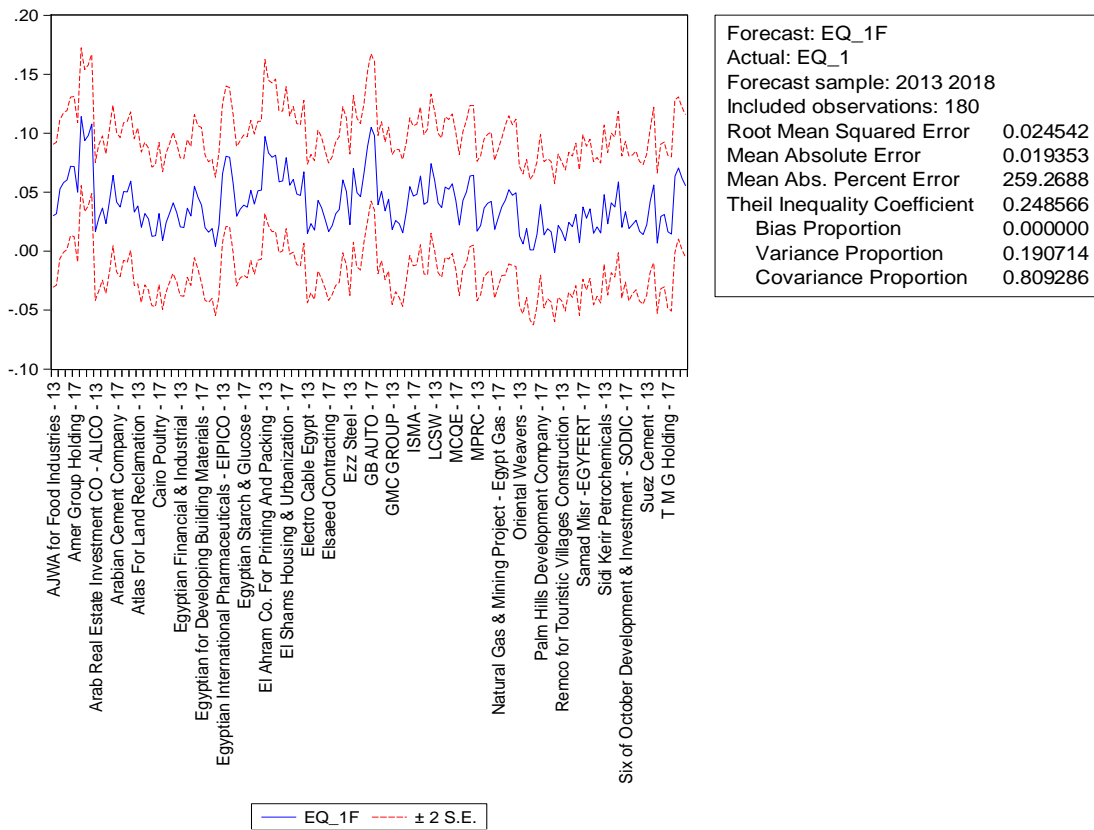
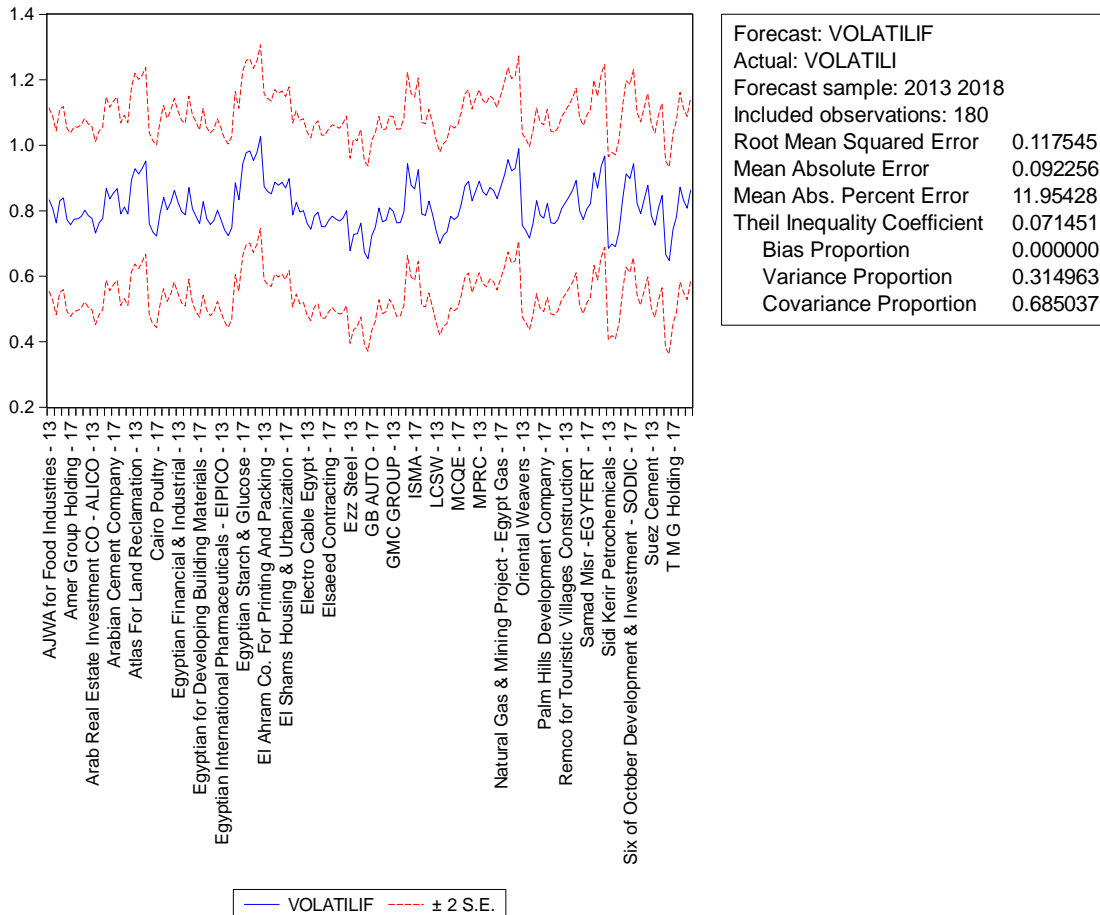


Figure A.3. Theil's inequality coefficient (U) for equation (3)



**Table A.1.** Cointegrating equation model for equation (1)

<i>Dependent variable</i>	<i>T-statistic</i>	<i>Prob.*</i>	<i>Z-statistic</i>	<i>Prob.*</i>
TCA	-8.962297	0.0000	-113.7842	0.0000
CFO <sub>t-1</sub>	-9.471879	0.0000	-183.3191	0.0000
CFO <sub>t</sub>	-11.68459	0.0000	-159.6547	0.0000
CFO <sub>t+1</sub>	-11.25520	0.0000	-150.1145	0.0000
REV	-9.212657	0.0000	-172.2099	0.0000
PPET	-8.959342	0.0000	-112.2645	0.0000

Note: It can be revealed that there are long-term equilibrium relationships among the dependent variables (TCA), based on the T-statistic and Z-statistic, at a significant levels less than 0.05. \* MacKinnon (1996) p-values.

**Table A.2.** Cointegrating equation model for equation (2)

<i>Dependent variable</i>	<i>T-statistic</i>	<i>Prob.*</i>	<i>Z-statistic</i>	<i>Prob.*</i>
EQ	-10.24676	0.0000	-129.6442	0.0000
IFRS	-14.84123	0.0000	-110.9703	0.0000
SIZE	-6.626028	0.0011	-70.66126	0.0009
ROA	-9.443189	0.0000	-121.4745	0.0000
LEV	-7.740812	0.0000	-88.35407	0.0000
GROWTH	-10.24842	0.0000	-129.4205	0.0000
MB	-6.763715	0.0007	-71.79894	0.0007
LOSS	-12.31808	0.0000	-162.9827	0.0000

Note: It can be revealed that there is long-term equilibrium relationships among the dependent variables (EQ) based on the T-statistic and Z-statistic, at a significant level less than 0.05. \* MacKinnon (1996) p-values.

**Table A.3.** Cointegrating equation model for equation (3)

<i>Dependent variable</i>	<i>T-statistic</i>	<i>Prob.*</i>	<i>Z-statistic</i>	<i>Prob.*</i>
SPV	-10.57207	0.0000	-226.8304	0.0000
EQ	-9.696953	0.0000	-124.6775	0.0000
LEV	-7.893239	0.0000	-91.10758	0.0000
SIZE	-6.333189	0.0001	-65.49884	0.0001
GROWTH	-9.776057	0.0000	-125.4484	0.0000

Note: It can be revealed that there are long-term equilibrium relationships among the dependent variables (SPV), based on the T-statistic and Z-statistic, at a significant levels less than 0.05. \* MacKinnon (1996) p-values.