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# IFRS 16 and firms' risk in emerging markets: the impact of managerial overconfidence

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## Abstract

**Purpose-** The purpose of this study is to (i) investigate how IFRS 16 affects firms' risk in Egypt and (ii) examine the moderating role of managerial overconfidence on this relationship.

**Design/methodology/approach-** This study uses data from the annual reports of 38 Egyptian firms from 2014 to 2022. This study employs the Generalized Method of Moments (GMM) and the Three-Stage Least Squares (3SLS) as estimation techniques.

**Findings-** The results show that IFRS 16 positively affect Egyptian firm risk, while managerial overconfidence reduces this positive effect.

**Originality/value-** Grounded in agency theory, this study reveals novel empirical insights into the impact of IFRS 16 on firm risk, especially in the context of emerging markets. Utilizing behavioural decision theory and upper echelons theory, it examines the previously unexplored influence of managerial overconfidence on this relationship.

**Limitation-** This study has some limitations. First, the sample size was relatively small. Second, our analysis did not incorporate other metrics of managerial overconfidence owing to the unavailability of relevant data in Egypt.

**Practical Implications-** – This study assists stakeholders and regulators in realizing the implications of IFRS 16 on a firm's risk, especially in emerging markets. Also, it enables managers to identify and assess lease-related risks more accurately to assist in developing appropriate risk mitigation strategies and optimizing lease-related decision-making processes. Furthermore, it aids in enhancing comprehension and knowledge of the interplay between managerial behaviour and firm outcomes.

**Keywords:** IFRS 16, firms' risk, managerial overconfidence, Egypt.

## 1. Introduction

Due to the growing interest in leasing as a source of funding worldwide, international standard setters have developed standards for measuring, presenting, and disclosing lease transactions. In January of 2016, the (IASB) International Accounting Standards Board announced the release of IFRS 16. This standard changed the way lessees operate; under IFRS 16, lessees are required to record nearly all lease agreements on their balance sheets (right-of-use assets and lease liabilities). Egyptian ministerial resolution No. 69 of 2019 issued Egyptian accounting standard No. 49 (lease contracts) in response to the IFRS update (EFRA, 2019).

The accounting treatment under IFRS 16 differs from that under IAS 17, which was heavily criticised due to comparability issues (Reither, 1998; Beattie et al., 2006), as lessees can deal with lease contracts as operating leases (the off-balance sheet approach). Despite the benefits of IFRS 16: Lease Contracts, such as enhancing the quality of financial reports, increasing comparability, and enhancing the level of disclosure and transparency related to leasing contracts, especially for lessees, IFRS 16 may lead to an increase in liabilities (PWC, 2016). The firm's risk and credit rating may also be impacted by these changes, particularly in developing countries.

In developed countries, several prior studies have explored the implications of capitalising operating leases on key financial ratios such as firm value, leverage, financial performance, working capital, and solvency (Durocher, 2008; Duke et al., 2009; Grossman and Grossman, 2010; Singh, 2012; Kusano et al., 2015; Nuryani et al., 2015; Caster et al., 2018; Chung, 2022; Hsieh and Su, 2022). To the best of our knowledge, the relationship between IFRS 16 and firm risk remains underexplored in the existing literature, particularly in the context of developing markets like Egypt.

In the corporate world, where protecting stockholder rights is crucial, taking risks has been one of the key issues. Although taking risks is crucial for a firm's performance and longevity, making decisions that involve excessive risk can ultimately lead to financial difficulty and raise the likelihood of collapse. Therefore, it would be wise to research how IFRS 16 will affect firm risk.

Lease decisions and firm risk may be affected by managerial attributes since these traits have an impact on how financial decisions are made in businesses. Brooks et al.

(2020) investigated the effect of manager ability on lease classification and revealed a significant positive association between managerial competencies and the decision to categorize leases as operating, indicating that high-ability managers tend to utilize operating leases more frequently. Additionally, some earlier studies explored the relationship between CEO traits and firm risk (Sheikh, 2019; Haider and Fang, 2013). Sheikh (2019) has shown that CEO power results in a higher level of business risk in line with agency theory. On the contrary, CEO power is inversely related, according to Haider and Fang (2013).

Managerial overconfidence is one of the important characteristics that may affect the decision-making process. According to behavioural finance theory, firms overseen by overly confident CEOs are likely to make greater contributions to systemic risk, as overconfident CEOs overestimate their performance, underestimating potential risk, and thus embarking on more hazardous ventures (Lee et al. 2019; Ben-David et al., 2013). Overconfidence can be considered part of narcissism, some characteristics of narcissism include excessive self-assurance, a sense of importance, a propensity for power and adoration, the faking of knowledge for one's own gain, and taking too many risks (Brummelman et al., 2016; Grijalva et al., 2015; Campbell et al., 2011).

Previous research indicated that managerial overconfidence is linked to overinvesting, investment inefficiency, and investing in risky projects (Malmendier and Tate, 2005; Hiller and Hambrick, 2005; Goel and Thakor, 2008; Hackbarth, 2008; Gervais et al. 2011; Campbell et al. 2011; Ben-David et al. 2013). Few prior studies have tested the relationship between managerial overconfidence and firm risk (e.g. Niu, 2010; Li and Tang, 2010; Kim et al., 2016; Ho et al. 2016; Lee et al. 2019), the findings of these studies indicated that confidence CEOs increase the firm's risks. In addition, the results of some studies (Hackbarth 2009; Malmendier et al. 2011; Ho et al. 2016) showed a positive association between managerial overconfidence and a firm's debt. Where lease contracts are considered an important tool that allows confident CEOs to overinvest, it is predicted that the influence of applying IFRS 16 and firm risk will be more pronounced in firms with overconfident CEOs.

This paper focuses on firms in Egypt for several reasons. First, Egypt's political landscape, marked by the instability following the 2011 and 2013 revolutions, provides a unique context for studying IFRS 16's impact on firm risk. This setting offers valuable insights into the challenges and opportunities firms encounter when adapting to new accounting standards during significant political transitions. Second, Egypt's economy is in a state of transition, with reforms aimed at achieving macroeconomic stability and growth, this creates a dynamic environment to study the impact of new accounting standards like IFRS 16. As of 2023, Egypt's government debt to GDP ratio stands at 95.80%, with historical fluctuations averaging 88.51 from 2002 to 2023, peaking at 103% in 2017 and reaching a low of 73.30% in 2009. The private sector debt to GDP ratio was 30.80% in 2022, with private debt accounting for 26.75% of nominal GDP in June 2023 (CBE, 2024). These indicators highlight the complex and evolving financial landscape in Egypt, making it a compelling environment for examining the impact of IFRS 16 on firm risk. Third, the prevalence of leasing in Egyptian firms, particularly in sectors like real estate and construction, means that IFRS 16, which changes how leases are reported, could significantly affect firms' risk profiles. Fourth, Egypt's regulatory framework is evolving, and the adoption of IFRS 16 intersects with local accounting practices and regulations, offering a complex setting to analyze its risk implications. Fifth, the characteristics of the Egyptian market, including the size and structure of firms, and their capital structure provide a distinct backdrop for assessing risk changes post-IFRS 16' effects on firm risk globally. Sixth, studying the impact of IFRS 16 in Egypt allows for comparative analysis with other countries that have different economic, regulatory, and market conditions, enhancing the understanding of IFRS 16's effects on firm risk globally.

According to the previous discussion, we are motivated to test the relationship between applying IFRS16 for lessees and firm risk in developing countries such as Egypt, which has not been examined before, in addition to exploring the moderating role of managerial overconfidence on the link between applying IFRS16 and firm risk.

This study provides several contributions. First, it assists in understanding the implications of adopting IFRS 16, by investigating the effect of IFRS 16 on firm risk, researchers can identify and quantify the changes in risk profiles that arise from the recognition of leases, this contributes to the body of academic literature and provides

valuable insights for standard setters, regulators, and practitioners. Second, it assists in evaluating the effectiveness of the new standard in achieving its intended objectives and identifying any unintended consequences. Third, it provides valuable insights to market participants, enabling them to make more informed investment decisions, assess creditworthiness, and properly evaluate risk exposures.

The remainder of the study is structured as follows: part two shows a literature review and hypothesis development, part three discusses the research method, part four focuses on the analysis of data and discussion, and finally, part five is the conclusion.

## **2. Literature review and hypothesis development**

### *2.1 The Institutional Background*

The oldest cotton futures exchange was founded in Alexandria, Egypt in 1861. The Alexandria Stock Exchange (ASE) was officially launched in 1883, followed by the Cairo Exchange in 1903. The exchanges were active in the 1940s, with the ASE ranking 5th globally by 2021 (EGX, 2021). Nationalization in the 1950s significantly reduced market capitalization from 13% of GDP in 1958 to just 1% by 1974. An open-door policy in 1974 aimed to encourage investment, but the market struggled 1970-1990 due to limited securities laws. This changed in 1992 with Capital Market Law No. 95 to spur private investment and investor protection (Omran, 2006). By the 2000s, the market saw automation, index inclusion, and new listing rules to enhance disclosure and governance (Girard & Omran, 2009; Otaify, 2016). In 2008, the Cairo and Alexandria exchanges merged as the Egyptian Stock Exchange (ESE, 2008).

The oversight of the Egyptian Stock Exchange (ESE) falls under the jurisdiction of the Egyptian Financial Supervisory Authority (EFSA), which is responsible for implementing regulatory measures that impact the performance and risk of listed firms. This includes the enforcement of Egyptian Accounting Standards (EAS) to ensure compliance with market regulations. Egypt has been gradually aligning its national accounting standards with IFRS. However, the country has not yet fully adopted IFRS, and there may still be differences between the local EAS and the international standards. In 2019, the Egyptian government issued ministerial resolution No. 69 of 2019, which introduced EAS No. 49 for lease contracts, in alignment with IFRS 16. This resolution

required all listed Egyptian firms to comply with the new standard as of the date of its issuance (EFRA, 2019).

The economic and political reforms in Egypt, such as the flotation of the Egyptian pound in 2016 and the political instability following the 2011 and 2013 revolutions, create a unique and volatile backdrop for examining IFRS 16's impact on firm risk. Exploring this relationship in a developing market undergoing significant transitions can yield valuable insights into the challenges and prospects firms encounter when adapting to evolving accounting requirements in a volatile economic and political environment.

## *2.2 underlying theories*

This research predominantly depends on the agency theory to explain the nexus between IFRS 16 and firm risk. Additionally, it employs the behavioural decision theory and the upper echelons theory to explain how CEO overconfidence may impact the nexus between IFRS 16 and firm risk. This combination effectively addresses the interplay between stakeholder interests, decision-making behaviours, and CEO influence, providing a comprehensive perspective on how IFRS 16 influences firm risk.

### *2.2.1 Agency Theory*

Based on the principles of agency theory (Kelembagaan and Eisenhardt, 1989), the introduction of IFRS 16, which mandates the capitalization of operating leases on the balance sheet, has the potential to influence firm risk due to the separation of ownership and control. Implementing this accounting standard may increase the awareness of lease-related obligations and heighten firm risk by raising leverage ratios and financial instability. This change reduces financial flexibility, limiting a firm's ability to adapt to new opportunities. Additionally, shifting operating lease expenses to depreciation and interest introduces earnings volatility, leading to higher stock return fluctuation and potentially conflicting with shareholders' preference for stability.

### *2.2.2 Behavioural Decision Theory*

Behavioural decision theory, arising from collaboration between psychologists and economists, explains how individuals make decisions under uncertainty. It acknowledges that decision-making often involves non-rational, social, and political processes. Also,

cognitive biases and heuristics can lead decision-makers away from perfect rationality (Einhorn et al. 1981; Higgins, 1991). When implementing IFRS 16, overconfident managers may overestimate their ability to manage increased financial risks related to lease accounting. Consequently, this could result in riskier decisions, amplifying the standard's impact on firm leverage. Conversely, less confident managers may make more cautious choices, mitigating the risk effects of IFRS 16.

### *2.2.3 upper echelons theory*

According to the upper echelons theory, managers' personalities or behaviour-related traits can have a significant impact on their decision-making and future outcomes. This theory provides a useful lens for understanding how the psychological attributes of top decision-makers can shape the organizational consequences of major accounting policy changes. Since CEOs are the highest-ranking employees and oversee all major business decisions (Bromiley, 1991; Sitkin & Pablo, 1992; Palmer & Wiseman, 1999; Goel & Thakor, 2008; Greve, 2003; Li & Tang, 2010), their cognitive characteristics can have a significant impact on the durability and growth of the firm. Based on the upper echelons theory, Overconfident managers may engage in more lease contracts that increase the firm risk, especially under IFRS 16.

### *2.3 IFRS 16 and firm risk*

Accounting for lease issues was one of the Financial Accounting Standards Board's (FASB) highest priorities. Regulators, academics, and users of financial statements have challenged the accounting principles for leases, arguing that they are ineffective and too complicated in showing the obligations of lessees from lease agreements on their financial statements (Monson, 2001).

Accounting for leases is one of the major joint projects that the IASB and FASB have been working on to achieve convergence. The leasing project aims to create a standard that clarifies the rules for lessors and lessees to disclose beneficial information to users about the lease-related cash flows, their amounts, timings, and risks. The lease project also aims to enhance the reliability, transparency, and relevance of these financial reports for users. To accomplish that objective, firms are required to recognize all assets and liabilities resulting from leases (IASB, 2013).

IFRS 16 emerged from a collaborative effort of the IASB and FASB, aiming to resolve the issues raised by financial statement users about the low comparability of financial statements due to the divergent accounting of operating and finance leases, the insufficient disclosure of operating leases and the related risks faced by firms. The two boards initiated a new lessee accounting method that mandates lessees to report assets and liabilities for the leases' rights and obligations and to enhance lease disclosure. Per IFRS 16, the lessee accounts for the right of use as an asset, and a lease liability for the discounted future lease payments at the lease's implicit rate.

Many scholars have studied leasing and focused on how operating leases affect financial ratios by capitalizing them before IFRS 16 was implemented. (Ashton, 1985; Imhoff et al, 1991; Beattie V. et al., 1998; Goodacre, 2003; Fulbier et al., 2008; Durocher, 2008; Jesswein, 2009; Grossman & Grossman, 2010; Kostolansky and Stanko, 2011; Singh, 2012; Barone et al., 2014; Curtis et al., 2020; Nuriani et al., 2020). For a sample of publicly traded Canadian corporations, Durocher (2008) investigated the impact of capitalizing operating leases on important financial metrics. The findings suggested that capitalizing operating leases might significantly lower the current ratio while raising the debt-to-asset ratio. Kostolansky and Stanko (2011) analyzed how capitalizing leases affected the financial reports, finding that assets and liabilities rose with higher interest rates and debt-to-asset ratio, while return on asset fell.

The effects of IFRS 16 on firms' financial performance have been the focus of some previous research (Ozturk and Sercemeli, 2016; Giner and Pardo, 2018; Magli et al., 2018; Fuad et al., 2022). IFRS 16 will significantly affect lessees' financial statements regarding their financial position and performance. In particular, lease assets will increase, financial liabilities will grow, equity will decrease, and finance expenses will go up (Magli et al., 2018). The empirical evidence provided by Ozturk and Sercemeli (2016) showed that the implementation of IFRS 16 results in growth in assets and liabilities and raises both the debt-to-assets and debt-to-property rights ratios. According to Giner and Pardo (2018), IFRS 16 attempts to enhance financial transparency and financial reporting quality. In Southeast Asia, Fuad et al. (2022) selected a group of industrial firms to explore the impact of early compliance with IFRS 16 on earnings management and firm performance. Their findings showed that adopting IFRS 16 does not influence earnings management strategies,

nor does adopting it early result in improved performance. However, early IFRS 16 adopters in highly corrupt settings outperform those in less corrupt ones.

The present study is distinct from earlier research on the potential effects of leasing in some ways. First, most of the earlier research on the implications of leasing was done in developed countries, and there isn't enough proof that these effects exist in emerging economies. Second, unlike most earlier studies, which were restricted to examining the various effects of operating lease capitalization, the current study is interested in examining the implications of the real implementation of IFRS 16 on the lessee. Third, to the best of the authors' knowledge, there is limited research assessing the influence of leasing activities on firm risks, especially under IFRS 16, which is likely to have an impact on the firms' value as well as future growth and competition opportunities, where, according to agency theory, expanding the lessee's leasing activities under IFRS 16 may result in maximizing agency costs by increasing the firms' obligations and thus their risk exposure. Furthermore, in emerging economies like Egypt and similar countries that experienced political and economic unrest, examining the relationship between implementing the new standard and the firms' risk is crucial for enhancing the effectiveness of upcoming economic reform initiatives.

Based on the above discussions, the first hypothesis will be formulated as follows:

*H1: IFRS 16 influences Egyptian firm risk.*

#### *2.4 Managerial overconfidence, IFRS 16, and firm risk*

Overconfidence can be defined as a manager's propensity to overestimate their skills and likelihood of success. Behavioural decision theory claims that overconfidence is a psychological bias that causes decision-makers to overstate their problem-solving abilities (Li & Tang, 2010).

Overconfident CEOs may believe they have complete control over a project's result and that it is not influenced by outside factors (Hiller & Hambrick, 2005). Exaggerated self-competence perceptions and a sense of control, according to Durand (2003), result in risky initiatives and unsuccessful outcomes, which raise the likelihood of uncertainties and risks. Additionally, overconfident CEOs overestimate their abilities and believe they can

successfully complete difficult tasks. They also believe they are superior to others and that the company is in the hands of qualified and talented management. They are more likely to take on risky tasks because of these perceptions. Overconfident CEOs take on extremely risky projects (Hackbarth, 2008). Along with overestimating their own abilities, they also grossly underestimate the likelihood that their projects will fail (Malmendier & Tate, 2005). They disregard suggestions and information from others as a result of their behaviour (Owen, 2007). Moreover, because people typically tend to support authorities' decisions, the workers who report to them fully agree with their actions (Padilla et al., 2007). Due to these issues, CEOs are unable to see any risks associated with their investments or innovation projects.

Previous research has been undertaken across diverse contexts to investigate the association between CEO overconfidence and firm decision-making. Several studies have found that CEO overconfidence is correlated with negative consequences for firms, such as underestimating the chances of failure, which results in impractical expectations (Heaton, 2002; Bollaert & Petit, 2010; Johnson & Fowler, 2011), overinvesting (Malmendier and Tate, 2005), value-destroying mergers (Malmendier and Tate, 2008), investment inefficiency (Ben-David et al. 2013), investing on risky projects (Hiller & Hambrick, 2005; Goel and Thakor 2008; Hackbarth, 2008; Gervais et al. 2011; Campbell et al. 2011), accounting fraud (Ahmed and Duellman, 2013), reducing the firm performance (Wong et al. 2017), and increasing the stock price crash risk (Hirshleifer et al., 2012; Kim et al. 2016).

Only a few studies have examined the influence of overconfidence on firm risk levels, despite the fact that risk forms the fundamental essence of decision-making processes and can have serious consequences related to corporate performance and endurance (e.g., Li & Tang, 2010; Niu, 2010; Kim et al., 2016; Ho et al., 2016; Lee et al., 2019; Salehi et al. 2022; Sutrisno et al. 2023). In this regard, Ho et al. (2016) examined the impact of CEOs' overconfidence on the exposure of banks to risk during periods of financial crisis. The findings indicate that CEOs with high levels of confidence amplify bank's leverage, relax their lending criteria before financial crises, and subject banks to heightened vulnerability during such periods. Niu (2010) examined the impact of managerial overconfidence and banks' risk. The results reveal that CEO overconfidence is positively associated with risk-

taking. Lee et al. (2019) examined how systemic risk in the U. S is affected by CEO overconfidence. According to their research, firms with overconfident CEOs increase systemic risk more than other firms. Conversely, the inflated self-belief of overconfident managers can motivate them to adopt a more cautious approach to risk management, ultimately reducing the firm risk. Managerial overconfidence can decrease firm risk through several mechanisms, such as being more willing to diversify investments, less likely to take on excessively risky projects, and more persistent in seeing underperforming projects through. In this regard, Salehi et al. (2022) used a sample of Tehran firms to investigate the impact of managerial overconfidence on firm risk. The results indicated that firm risk is negatively affected by high managerial overconfidence, where managers with overconfidence tend to seek admiration and opt for efficient investment decisions. Sutrisno et al. (2023) found that the risk of Indonesian listed firms is negatively affected by CEO overconfidence.

Firm risk is more sensitive to IFRS 16 in the presence of managerial overconfidence, which induces excessive investment due to optimistic beliefs about the returns of investment projects, and leasing is a significant investment tool. Also, some prior literature indicated that CEOs' overconfidence positively affects the firm's debt, the findings of these studies indicated that overconfident CEOs have inflated expectations about their own and the firm's performance, and therefore prefer more leverage (Hackbarth 2009). According to (Malmendier et al. 2011), overconfident CEOs have a preference for debt over equity financing and their firms exhibit higher leverage ratios. Furthermore, behavioural biases of overconfident CEOs, including their tendency to overestimate their abilities, display a higher tolerance for risk, reject external advice, and have overly optimistic views on cost savings, result in their inclination to engage in lease contracts under IFRS 16 and adopt IFRS 16 earlier. This behaviour could be attributed to a few reasons. Firstly, overconfident CEOs believe in their ability to manage the transition to IFRS 16 successfully, leading to earlier adoption. Secondly, their higher risk tolerance makes them more likely to adopt IFRS 16 early, even if it is not optimal. Thirdly, they may overestimate the benefits of IFRS 16 adoption, further motivating early implementation.

Based on the above discussion and according to the upper echelons and the behavioural decision theories, the following is the second hypothesis:

*H2: Managerial overconfidence moderates the relationship between IFRS 16 and firms' risk.*

### **3. The research method**

#### *3.1. sample selection*

Our population includes the Egyptian firms that were listed on the EGX 70 from 2014 to 2022. The data were gathered from the annual reports. Our sample is mainly focused on firms (lessees) that have leasing activities. The sample also includes firms (lessees) that have early implementation of IFRS 16 in any year of the sample. We excluded the banks because they have unique financial characteristics and different regulations. Our final sample consists of a balanced panel of 38 firms with a total of 342 firm-year observations. This research targets firms with lease activities to achieve greater precision in analyzing the impact of IFRS 16 on firm risk. By focusing on these firms, the research ensures a more accurate assessment of the standard's effects. The selected firms share common characteristics, such as lease contracts and IFRS 16 application, enhancing sample homogeneity. This approach allows for an isolated examination of IFRS 16 adoption's impact on firm risk, free from the influence of non-adopting firms. Furthermore, this research examines periods before and after IFRS 16 adoption to provide a comprehensive analysis of its impact on firm risk and ensure an unbiased perspective. By including both periods, the study allows for comparative analysis, highlighting changes in lease accounting and firm risk due to IFRS 16. Prior to 2019, most leases were treated as operating leases under IAS 17 and not recognized on the balance sheet. Also, analyzing both periods helps understand market reactions and investor perceptions, with stock volatility used to measure firm risk. The longitudinal approach offers a nuanced understanding of IFRS 16's impact, capturing the shift from IAS 17 to IFRS 16 and its effects on risk profiles. Additionally, including data from 2014 to 2022 allows for the evaluation of early adopters and controls for other factors influencing firm risk, providing a richer analysis of the standard's implications. The generalized method of moment (GMM) estimator, which is designed for dynamic panel data, was applied to the data using STATA software. Table (1) presents the sample selection process as follows:

**(insert Table 1 here)**

### *3.2. Measurement of variables and Research models*

#### *3.2.1. IFRS 16*

IFRS 16 is the independent variable in this study, some studies measure IFRS 16 by the early implementation of IFRS 16. For example, Fuad et al. (2022) used a dichotomous variable to capture the adoption of IFRS 16, assigning 1 to firms that voluntarily switched to IFRS 16 before the mandatory deadline, and 0 otherwise. Khersiat (2020) focus on applying the IFRS 16 before and after the adoption. Cumming and Galt (2022) used the capitalization model to assess the new standard on lease accounting (IFRS 16). In this study, we use two proxies to measure IFRS 16. First, the ratio of right-of-use assets to total assets. Second, a dummy variable which equals (1) if the firm (lessees) has lease contracts and applies IFRS 16 and (0) otherwise.

#### *3.2.2 firm risk.*

The dependent variable of this study is firm risk, this variable was measured in the prior research using several proxies. For example, Díez-Esteban et al. (2020) employed the Z-score to assess the risk of firms. The Z-score reflects the financial stability and insolvency risk of firms, with higher values indicating lower risk and greater stability (Nguyen and Dang, 2020). Following Taylor et al. (2010), the leverage (debt-to-assets ratio) is used to measure firm risk. A higher leverage value indicates a higher level of risk (Chollet and Sandwidi, 2018). Additionally, the standard deviation of the cash flow to assets ratio (cash flow volatility) is used to measure firm risk by Harris et al. (2019). Some studies used market data to measure firm risk. For example, Guenther et al. (2017) and Sutrison et al. (2023) used the volatility of stock return as a market measure of firm risk. This metric captures the investor perception or market assessment of the risks arising from the firm's assets and liabilities. A higher value of stock return volatility implies that the firm's stock return is volatile, and therefore, the firm faces a greater degree of risk (Guenther et al., 2017). In this study, we used two proxies to measure firm risk based on the accounting and market data. First, the leverage (measured by debt-to-assets ratio). Second, the stock return volatility (measured by the standard deviation of monthly stock return). A combination of accounting-based and market-based measures provides a comprehensive evaluation of a firm's risk profile, highlighting financing risks and overall risk assessment

by the market. This approach offers a robust and academically sound method for assessing firm risk, utilizing the strengths of both accounting and market information.

### 3.2.3 Managerial overconfidence

Managerial overconfidence is a moderating variable. Previous research has used various metrics to

capture the overconfidence of CEOs, such as manager traits and frequency of merger and acquisition by CEOs (Doukas and Petmezas 2007), CEOs' shareholdings (Minggui et al. 2006; Hirshleifer et al. 2012), executive compensation (Jiang et al. 2009), forecasting of corporate earnings (Wang et al. 2008; Hribar and Yang 2016 and He et al. 2019), earnings per share (EPS) forecasting (Ishikawa and Takahashi, 2010), and Investment in the capital venture (Ahmed and Duellman, 2013). In this study, we used a binary indicator of capital expenditure, which is 1 if the firm's annual capital expenditure, scaled by lagged assets, is above the industry median for that year, and 0 otherwise. This proxy is appropriate for our research questions, as overconfident managers may engage in excessive capital expenditure due to their propensity to overestimate investment returns and underestimate the associated risks.

### 3.2.4 Control variables.

Several prior studies examined the factors that influence the firm risk such as firm size, firm age, ROA, Big4, COVID-19, sales growth, liquidity, board gender diversity, board age, ownership, CEO power and cash flow volatility (Sutrisno et al.,2023; Safi et al.,2021; Harjoto et al.,2014; Nguyen, 2011; Han et al.,2015; Memon and Tuany, 2021; Almustafa et al.,2023). In line with prior studies, firm size, ROA, Big4, firm age, board gender diversity, and COVID-19 were used as control variables in this study.

### 3.2.5 The research model

The relationships between the study's variables can be formulated as the models below:

$$FR_{it} = \beta_0 + \beta_1 IFRS\ 16_{it} + \beta_2 Overc_{it} + \beta_3 Size_{it} + \beta_4 Age_{it} + \beta_5 ROA_{it} + \beta_6 Big4_{it} + \beta_7 Cov-19_{it} + \beta_8 BGD_{it} + \varepsilon_{it} \dots\dots\dots(1)$$

$$FR_{it} = \beta_0 + \beta_1 Overc \times IFRS\ 16_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 ROA_{it} + \beta_5 Big4_{it} + \beta_6 Cov-19_{it} + \beta_7 BGD_{it} + \varepsilon_{it} \dots\dots\dots(2)$$

Where: FR is the firm risk, IFRS 16 is applying IFRS 16 by the lessee, Overc is managerial overconfidence, Size is firm size, Age is firm age, ROA, is profitability, Big4 is audit firm size, Cov-19 is COVID-19, BGD is board gender diversity, Overc $\times$  IFRS 16 is interaction between ifrs16 and managerial overconfidence.

Table (2) presents the study variables and the related measures:

**(insert Table 2 here)**

### *3.3 Research technique*

The study employed the panel data methodology to examine its hypotheses. The effect of IFRS 16 on firm risk and the moderating role of managerial overconfidence were tested using the fixed-effects model, as determined by the Husman test ( $P < 0.05$ ). However, the obtained results revealed certain challenges, including heteroscedasticity (Prob.  $>$  chi-square = 0.000), autocorrelation based on the Wooldridge test (Prob  $>$  F = 0.000), and endogeneity as indicated by the Hausman–Durbinwaston test. To address these issues, the study utilized the GMM estimator, specifically designed for dynamic panel data analysis, which was initially introduced by Hansen (1982)

The dynamic GMM panel data estimation method offers several advantages. First, it addresses endogeneity concerns by accounting for potential correlations between regressors and error terms. Second, it incorporates lagged dependent variables as covariates and includes fixed unobserved panel-level effects. Third, it is a suitable method for analyzing the specific data structure under investigation (Hansen, 1982; Arellano and Bond, 1991). To test for serial correlation in dynamic panel data models, the Arellano-Bond test was employed in this study. The obtained results indicate the absence of autocorrelation across all models. Also, in this study, the Sargan test of over-identifying restrictions was employed to assess the presence of heteroskedasticity. The result revealed that the overidentifying restrictions were not valid across all models, as indicated by the insignificant P-value. Consequently, these findings suggest the absence of heteroskedasticity.

## **4. The data analysis and discussion of results**

### *4.1 Descriptive analysis*

Table (3) shows the descriptive analysis of variables used in the study. The total debts represent on average 27% of the total assets. The percentage of ROUA to total assets ranges from 0 to 52%, and 42% of the sample observations include the implementation of the new accounting treatment to lessee lease contracts according to IFRS 16. Managerial overconfidence exists in 35.6 % of the sample observations. The COVID-19 pandemic appeared in Egypt in 2020 and 2021, so, it exists in 33.6 % of the sample observations. The average firm's size, ROA, and BIG 4 are 6.4, 4%, and 58% respectively. The Egyptian firm's age varies from 8 to 93 years. Furthermore, the descriptive results show that women represent on average 13% of the board size.

**(insert Table 3 here)**

#### *4.2 Correlation*

Table (4) presents the relationships among the study variables to examine the magnitude and direction of these relationships. The VIF test is also performed to check for the presence of multicollinearity among the independent variables. The correlation coefficients show a positive relationship between firm risk and lease contracts for lessees under IFRS 16, also, the results reveal that firm risk is correlated positively with each of the Covid-19, firm size, and BIG 4, while the association between firm risk and ROA is negative. In addition, the VIF test in Table (4) indicates no multicollinearity among independent variables ( $VIF < 10$ ).

**(insert Table 4 here)**

#### *4.3. Regression Results and Discussion*

Table (5) shows the regression results of empirical analysis on the effect of IFRS 16 on the firm risk for lessees. In Panel (A), the coefficient of IFRS 16 and ROUA is positive and significant at a 1% level, indicating that Egyptian firms (lessees) applying the IFRS 16 have a high level of risk measured by debt to assets ratio. This result is in line with Sercemeli and Ozturk (2016), who found that the adoption of IFRS 16 leads to growth in the debt-to-assets ratio. Also, the findings reveal that IFRS 16 (ROUA ) has a positive effect on the firm risk (DA) for the lessee. This result is consistent with prior literature that found an effect of capitalizing the operating lease on increasing liabilities and debt to assets ratio (Durocher,2008; Kostolansky and Stanko, 2011)

Regarding the control variables, the findings reveal that firm risk is negatively affected by COVID-19 and firm size. Also, the results show that firm age negatively affects the firm risk at a 10% significance level. Additionally, the results show that firm risk is positively affected by ROA, BIG 4, and board gender diversity.

In panel (B), the results show that IFRS 16 has a positive effect on the firm risk for lessees measured by stock return volatility, this means the application of IFRS 16 increases the stock return volatility leading to a higher level of firm risk. These results can be interpreted by the agency theory, where expanding a lessee's leasing activities could lead to an increase in agency costs by escalating the firm's obligations and thus their risk exposure, especially under IFRS 16. Also, the coefficient of OVERC is negative and significant at the 5% level. This means that OVERC decreases the firm risk (SRV).

The results of Table (6) test the moderating role of managerial overconfidence on the relationship between IFRS 16 and firm risk. In panel (A), the results indicate that managerial overconfidence decreases the positive effect of IFRS 16 on firm risk (DA). This result aligns with upper echelons theory and behavioural decision theory, which suggest that managerial personality or behavioural traits significantly influence decision-making and subsequent outcomes. Also, this result is consistent with Sutrisno et al. (2023) and Salehi et al. (2022) who found that CEO overconfidence decreases firm risk. However, the results are not in line with prior literature that found a positive effect of managerial overconfidence on firm risk (Ho et al. 2016; Niu, 2010; Lee et al. 2019). In panel (B), the coefficient of interaction variable  $OVERC \times IFRS\ 16$  is negative and significant, these mean that managerial overconfidence reduces the positive effect of IFRS 16 on firm risk for the lessee (SRV) at a 10% significance level.

According to the previous regression results, the financial risk of Egyptian firms was potentially lower than it should have been before applying IFRS 16, due to the off-balance-sheet approach of operating leases under IAS 17. This produced incomplete financial statements with lower reported leverage ratios that obscured the true extent of the firm's financial obligations. However, the adoption of IFRS 16 mandated the inclusion of most leases onto the balance sheet, resulting in increased visibility of lease liabilities. This in turn increased the firm's leverage ratios, providing a more accurate representation of its financial risk profile.

Additionally, the regression results indicated that IFRS 16 may reduce lessees' flexibility and compliance, as it increases their obligations, especially in emerging markets with diverse and

complex regulations. Also, IFRS 16 may harm lessees' social welfare and sustainability, as it exposes them to higher financial risks and uncertainties and weakens the trust and confidence of various stakeholders. Furthermore, IFRS 16 may affect lessees' strategic and operational choices, as it impacts their financial performance and position indicators, and discourages them from using leases as a flexible and cost-effective financing and acquisition tool. Additionally, managerial overconfidence may lead to better investment and debt decisions and may enhance the strategic and operational decisions of lessees.

**(insert Table 5 here)**

**(insert Table 6 here)**

#### *4.4 First Robustness analysis*

To examine the validity of our findings, we applied three-stage least squares (3SLS) estimation to assess the association among variables. Following Zellner and Theil (1962), 3SLS is a method of estimation for a system of equations, where some of the regressors are endogenous variables. These endogenous regressors are usually the outcomes of other equations in the system. In addition, 3SLS employs an instrumental variable method to obtain unbiased estimates and generalized least squares (GLS) to adjust for the covariance pattern in the error terms across equations (Kmenta, 1997; Greene, 2003).

3SLS is a method of estimation that consists of three stages. Step 1: Generate fitted values for all endogenous variables by regressing each of them on all exogenous variables in the system. These fitted values can be interpreted as the instruments for the endogenous variables. Step 2: Estimate the covariance matrix of the error terms across equations in a consistent way. Step 3: Apply a GLS-type estimation using the covariance matrix obtained in the second step and replace the endogenous variables on the right-hand side with their instruments.

We used the firm size as an instrumental (exogenous) variable because the application of IFRS 16 is correlated with firm size. The application of IFRS 16 may be different between large firms and small firms. The models fit statistics represent strong explanatory power, with significant F-stat values.

Table (7) shows the empirical results of 3SLS for the relationships between IFRS 16 and firm risk. In panels (A) and (B), the results of robustness analysis confirm that applying IFRS 16

increases the debt-to-assets ratio (DA) and the stock return volatility (SRV) then a higher level of firm risk. This result is consistent with our main finding in Table (5).

Table (8) reports the results of moderating variable OVERC using 3SLS. In panel (A), the interaction of  $OVERC \times IFRS\ 16$  and  $OVERC \times ROUA$  remains negative but nonsignificant, in panel (B), The results of 3SLS support that managerial overconfidence reduces the positive effect of IFRS 16 on firm risk for the lessee (SRV) at a 1% significance level. This result is in line with our main finding of moderating variable OVERC in Table (6).

**(insert Table 7 here)**

**(insert Table 8 here)**

#### *4.5 Second Robustness Analysis*

To bolster the robustness of our foundational model, we introduce additional control variables: board size, board independence, the CEO duality. Board size represents the number of directors. Board independence is assessed by the proportion of non-executive directors in the board. The CEO duality is a dummy variable which equals (1) if the CEO concurrently serves as the board chair and (0) otherwise. The incorporation of these variables provides a more comprehensive and reliable examination of the results derived from our primary model.

The robustness analysis detailed in Table (9) reaffirms the key conclusions drawn from the primary findings presented in Table (5). Notably, the data demonstrated that IFRS 16 is associated with a rise in the debt-to-asset ratio as well as increased stock return volatility, consequently leading to heightened levels of firm risk. Furthermore, the results in Table (10) confirm that managerial overconfidence decreases the positive effect of IFRS 16 on firm risk for the lessee. These findings are consistent with our main finding in Table (6).

**(insert Table 9 here)**

**(insert Table 10 here)**

### **5. Conclusion**

The purpose of this study is to (i) investigate how IFRS 16 affects firms' risk in Egypt and (ii) examine the moderating role of managerial overconfidence in this relation. The generalized method of moment (GMM) was used for a sample of 38 Egyptian firms from 2014 to 2022 with a total observation of 342. Our findings indicate that firm risk for the lessee is positively affected by IFRS 16, indicating that the lessee applying IFRS 16 has a

high level of leverage and an increase in stock return volatility then a high level of risk. The results also show that managerial overconfidence diluted this positive effect.

This study provides several contributions. First, previous research primarily focused on the impacts of leasing in developed markets, leaving a dearth of evidence regarding its effects in emerging markets. Additionally, earlier studies were limited to analyzing the consequences of capitalizing operating leases, whereas the present study aims to investigate the practical implementation of IFRS 16 on lessees.

According to agency theory, this study provides new empirical evidence on the impact of IFRS 16 on firm risk, especially in the context of emerging markets. Based on upper echelons theory and behavioural decision theory, this study investigates whether the relationship between IFRS 16 and firm risk is influenced by managerial overconfidence, which has not been examined before.

This study provides valuable insights for stakeholders to realize the implications of IFRS 16 on a firm's risk profile. Also, it aids in evaluating the standard's effectiveness and identifying any unintended consequences. Furthermore, it has practical implications for investors, analysts, and stakeholders, enabling them to make more informed decisions regarding investment, credit evaluation, and risk assessment. Second, it fills a gap in the literature by examining the impact of IFRS 16 on firm risk and testing the moderating role of managerial overconfidence. Third, it guides policymakers and regulators in assessing the efficacy of the new standard in accomplishing its desired goals and detecting any unanticipated ramifications. Fourth, it offers diverse perspectives that can enhance the decision-making process for market participants. It empowers them to make better-informed choices, evaluate the creditworthiness of firms, and effectively assess their exposure to risks. Fifth, it provides managers with a valuable tool for effectively recognizing and evaluating risks associated with leases, thereby facilitating the development of suitable strategies to mitigate these risks and optimize decision-making processes concerning leases. Furthermore, it contributes to a deeper understanding of how managerial behaviour influences firm outcomes.

We acknowledge some drawbacks of our study. First, the number of Egyptian firms in our sample was limited. Second, we did not consider other indicators of managerial overconfidence. Future research should investigate the impact of IFRS 16 on firm risk in

other contexts especially developed markets to compare future findings with those from developing markets, such as our current study. This comparison will provide a broader understanding of IFRS 16's impact on firm risk across diverse economic landscapes. Additionally, future studies could explore other implications of IFRS 16, such as its effects on operational performance and firm value.

**Table 1. Sample Selection**

	<b>Firms</b>	<b>Observations</b>
Population	70	630
(-) Banks	(13)	(117)
(-) Missing data items	(19)	(171)
Final sample	38	342

**Source: Authors' own work**

**Table 2. Measurement of Variables**

<b>Variables</b>	<b>Name</b>	<b>Abbreviation</b>	<b>Measure</b>
Dependent Variables	Firm risk	DA	Debt to assets ratio
		SRV	Standard deviation of monthly stock returns (Stock return volatility)
Independent Variable	IFRS 16	ROUA	The ratio of right-of-use assets to total assets
		IFRS 16	A Dummy variable which equals (1) if the firm (lessees) has lease contracts under IFRS 16 and (0) otherwise
Moderating variable	Managerial overconfidence	OVERC	A binary indicator for capital expenditures, which is 1 if the firm's annual capital expenditures, scaled by lagged assets, exceeds the industry median for that year, and (0) otherwise.
Control Variables	firm size	SZ	log of total assets
	Profitability	ROA	Net income after tax/ total assets
	firm age	Age	The number of years since the firm's establishment.
	Audit firm size	Big4	A binary indicator, which is (1) if the firm's auditor belongs to the BIG 4 and (0) otherwise.
	COVID-19 pandemic	COVID-19	A binary indicator for the years from 2020 to 2022, is (1) if the observation belongs to either of those years and (0) otherwise.
	Board gender diversity	BGD	The ratio of female directors to total directors.

**Source: Authors' own work**

**Table 3. Descriptive Statistics**

Variables	N	Mean	Min	Max	Std. Deviation
DA	342	0.272	.003	0.78	0.169
ROUA	342	0.015	0	0.520	0.063
IFRS 16	342	0.421	0	1	0.494
OVERC	342	0.356	0	1	0.479
Cov-19	342	0.333	0	1	0.473
ROA	342	0.043	-0.595	0.499	0.105
SZ	342	6.40	4.45	11.13	1.09
Big4	342	0.581	0	1	0.493
Age	342	28.94	8	93	16.30
BGD	342	0.131	0	0.71	0.131

Source: Authors' own work

**Table 4. Correlation Matrix**

	DA	ROUA	IFRS 16	OVERC	Cov-19	ROA	SZ	Big4	Age	BGD	VIF
DA	1										-
ROUA	0.30***	1									1.27
IFRS 16	0.53***	0.28***	1								2.86
OVERC	0.05	-0.03	-0.04	1							1.03
Cov-19	0.42***	0.21***	0.79***	-0.06	1						2.79
ROA	-0.27***	-0.36***	-0.11**	0.08	-0.10*	1					1.19
SZ	0.14***	-0.04	0.04	-0.01	0.10*	-0.005	1				1.02
Big4	0.18***	-0.08	0.08	0.11**	0.07	0.08	-0.01	1.000			1.06
Age	0.07	0.09*	0.13**	-0.07	0.13**	-0.17***	-0.03	0.12**	1.		1.07
BGD	0.007	0.12**	0.06	0.02	0.03	-0.05	0.006	0.01	-0.01	1	1.02

Notes: \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' own work

**Table 5. IFRS 16 and Firm risk using GMM**

	Panel (A)		Panel (B)	
	DA		SRV	
	1	2	1	2
	Coef (Z)	Coef (Z)	Coef (Z)	Coef (Z)
<b>DA.L1</b>	<b>0.519 (10.94)***</b>	<b>0.517(10.45)***</b>	-	-
<b>SRV.L1</b>	-	-	<b>0.059 (0.76)</b>	<b>0.059 (0.76)</b>
<b>ROUA</b>	<b>1.05 (27.38)***</b>	-	<b>0. 590 (4.34)***</b>	-
<b>IFRS 16</b>	-	<b>0.162(16.24)***</b>	-	<b>0.162 (16.24)***</b>
<b>OVERC</b>	<b>0.012 (1.63)</b>	<b>-0.011(-1.46)</b>	<b>-0.021 (-2.32)**</b>	<b>-0.011 (-1.46)</b>
<b>Cov-19</b>	<b>- 0.041 (- 4.06)***</b>	<b>-0.073 (-7.41)***</b>	<b>0.029 (2.56)***</b>	<b>-0.073 (-7.41)***</b>
<b>ROA</b>	<b>0.127 (4.08)***</b>	<b>-0.024 (-0.38)</b>	<b>0.057 (0.84)</b>	<b>-0.024 (-0.38)</b>
<b>SZ</b>	<b>- 0.023 (-3.66)***</b>	<b>-0.012 (-1.69)*</b>	<b>0.0009 (0.12)</b>	<b>-0.012 (-1.69)*</b>
<b>Big4</b>	<b>0.079 (2.83)***</b>	<b>0.032 (1.13)</b>	<b>0.059 (1.88)*</b>	<b>0.032 (1.13)</b>
<b>Age</b>	<b>-0.007 (-1.91)*</b>	<b>-0.003 (-1.39)</b>	<b>-0.003 (-2.22)**</b>	<b>-0.003 (-1.39)</b>
<b>BGD</b>	<b>0.163 (2.29)**</b>	<b>0.027 (0.73)</b>	<b>0.298 (3.15)***</b>	<b>0.027 (0.73)</b>
<b>Firm- effect</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Year- effect</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>Cons</b>	<b>-52.38(-4.82)***</b>	<b>-10.01(-1.83)</b>	<b>-52.64 (-14.22)**</b>	<b>-10.01 (-1.83)</b>
<b>P- value</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Obs</b>	<b>304</b>	<b>304</b>	<b>216</b>	<b>216</b>
<b>Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.</b>				

**Source: Authors' own work**

**Table 6. OVERC, IFRS 16 and Firm risk using GMM**

	Panel (A)		Panel (B)	
	DA		SRV	
	1	2	1	2
	Coef (Z)	Coef (Z)	Coef (Z)	Coef (Z)
DA.L1	0.544 (12.95)***	0.488 (9.39)***	-	-
SRV.L1	-	-	0.071 (0.86)	0.203 (2.87)***
ROUA	1.005 (21.65)***	-	0.565 (3.63)***	-
IFRS 16	-	0.188 (13.73)***	-	.192 (20.35)***
OVERC	0.014 (1.90)*	0.010 (0.90)	-0.020 (-1.99)**	-.007 (-0.74)
OVERC × ROUA	-0.178 (-2.06)**	-	-0.020 (-0.25)	-
OVERC × IFRS 16	-	-0.045 (-3.06)***	-	-.023 (-1.81)*
Cov-19	-0.043 (-4.71)***	-0.070 (-7.14)***	0.028 (2.48)**	-.026 (-1.84)*
ROA	0.133 (4.15)***	-0.042 (0.72)	0.056 (0.81)	.055 (2.14)**
SZ	-0.020 (-3.22)***	-0.009 (-1.07)	0.0002 (0.03)	.010 (2.37)**
Big4	0.064 (2.26)**	0.031 (1.30)	0.055 (1.54)	.011 (1.19)
Age	-0.009 (-2.30)**	-0.002 (-0.92)	-0.003 (-2.49)**	.001 (0.78)
BGD	0.125 (1.62)	0.030 (0.85)	0.30 (3.23)***	.096 (1.89)*
Firm- effect	Yes	Yes	Yes	Yes
Year- effect	Yes	Yes	Yes	Yes
Cons	-54.69 (-5.56)***	-5.83 (-1.04)	-52.43 (-14.11)***	3.09 (0.61)
P-value	0.000	0.000	0.000	0.000
Obs	304	304	216	216

Notes: \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' own work

**Table 7. First Robustness analysis (IFRS 16 and Firm risk using 3SLS)**

	Panel (A)		Panel (B)	
	DA		SRV	
	1	2	1	2
	Coef (t)	Coef (t)	Coef (t)	Coef (t)
ROUA	.418 (2.90)***	-	.18(2.75)***	-
IFRS 16	-	0.174(6.52)***	-	.167(17.50)***
OVERC	.042 (2.43)**	.041(2.47)**	-.004(-0.47)	.001(0.26)
Cov-19	.154 (8.41)***	.021 (.78)	.151(16.66)***	.01(1.59)
ROA	-.349 (-4.07)***	-.40 (-5.27)***	.041(1.05)	.024(0.97)
Big4	.049 (2.88)***	.041 (2.54)**	-0.0006(-0.0001)	-.004(-0.74)
Age	-0.0005 (-1.06)	-0.0006 (-1.30)	1.65(0.01)	-0.0001 (-.66)
BGD	-.10 (-1.56)	-.101 (-1.67)*	.009(0.31)	.005(0.26)
Cons	.22(9.79)***	.209(9.69)***	.06(5.80)***	.048(6.36)***
R2	0.30	0.36	0.57	0.81
F-stat	20.51	27.31	46.12	144.20
P-value	0.000	0.000	0.000	0.000
Obs	340	340	243	243

Notes: \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' own work

<b>Table 8. First Robustness analysis (OVERC, IFRS 16 and Firm risk using 3SLS)</b>				
	<b>Panel (A)</b>		<b>Panel (B)</b>	
	<b>DA</b>		<b>SRV</b>	
	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>
	<b>Coef (t)</b>	<b>Coef (t)</b>	<b>Coef (t)</b>	<b>Coef (t)</b>
<b>ROUA</b>	<b>.422 (2.58)**</b>	<b>-</b>	<b>.161 (2.16)***</b>	<b>-</b>
<b>IFRS 16</b>	<b>-</b>	<b>.179 (6)***</b>	<b>-</b>	<b>.181 (17.81)***</b>
<b>OVERC</b>	<b>.043 (2.88)**</b>	<b>.046 (2.15)**</b>	<b>-.005 (-0.58)</b>	<b>.018 (2.33)**</b>
<b>OVERC × ROUA</b>	<b>-.018(-0.06)</b>	<b>-</b>	<b>.109(0.67)</b>	<b>-</b>
<b>OVERC × IFRS 16</b>	<b>-</b>	<b>-.013(-0.39)</b>	<b>-</b>	<b>-.042(-3.48)***</b>
<b>Cov-19</b>	<b>.154 (8.38)***</b>	<b>0.21 (.75)</b>	<b>.150(16.46)***</b>	<b>.014 (1.46)</b>
<b>ROA</b>	<b>-.348 (-3.94)***</b>	<b>-.404 (-5.19)***</b>	<b>.035 (0.86)</b>	<b>.031 (1.32)</b>
<b>Big4</b>	<b>.049 (2.88)***</b>	<b>.041 (2.51)**</b>	<b>-.0004(-0.05)</b>	<b>-.004 (-0.82)</b>
<b>Age</b>	<b>-0.0006 (-1.06)</b>	<b>-0.0006 (-1.27)</b>	<b>.00001(0.05)</b>	<b>-0.0006 (-.40)</b>
<b>BGD</b>	<b>-.099 (-1.55)</b>	<b>-.101 (-1.67)*</b>	<b>.008 (0.29)</b>	<b>.002 (0.14)</b>
<b>Cons</b>	<b>.22(9.70)***</b>	<b>.207 (9.25)***</b>	<b>.067 (5.83)***</b>	<b>.04 (5.39)***</b>
<b>R2</b>	<b>0.30</b>	<b>0.365</b>	<b>0.58</b>	<b>0.82</b>
<b>F-stat</b>	<b>17.89</b>	<b>23.85</b>	<b>40.31</b>	<b>133.85</b>
<b>P- value</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Obs</b>	<b>340</b>	<b>340</b>	<b>243</b>	<b>243</b>
<b>Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.</b>				

Source: Authors' own work

**Table 9. Second Robustness analysis (IFRS 16 and Firm risk using GMM)**

	Panel (A)		Panel (B)	
	DA		SRV	
	1 Coef (Z)	2 Coef (Z)	1 Coef (Z)	2 Coef (Z)
DA.L1	0.474 (11.55)***	0.426 (8.91)***	-	-
SRV.L1	-	-	.043 (0.44)	.180 (2.38)**
ROUA	1.14 (12.90)***	-	.585 (3.77)***	-
IFRS 16	-	0.188 (14.52)***	-	.175 (15.84)***
OVERC	0.029 (3.97)***	0.004(0.48)	-.016 (-1.50)	-.0102 (-1.69)*
Cov-19	- 0.011(- 0.86)	-.052 (-5.27)***	.035 (2.49) **	-.020 (-1.06)
ROA	0.099 (1.90)	-.081 (-1.21)	.018 (0.25)	.034 (1.19)
SZ	- 0.006 (-0.85)	-.007(-0.87)	.002 (0.26)	.007 (1.20)*
Big4	0.054 (1.67) *	-0.006 (-0.22)	.044 (1.21)	.010 (1.07)
Age	-0.016 (-2.65)***	-.011 (-2.38)**	-.004 (-2.09)**	.0002 (0.15)
BGD	0.67(2.62)***	.102 (2.02)**	.282 (2.64)***	0.60 (1.45)
Bsize	-0.061(-1.34)	-.088(-1.85)*	-.027(-1.22)	-.002(-0.27)
Indep	-0.03(-0.11)	-.11(-0.51)	.154(0.59)	.137(0.91)
Dual	0.27(0.68)	.30(0.98)	-.336(-0.86)	.170(0.92)
Firm- effect	Yes	Yes	Yes	Yes
Year- effect	Yes	Yes	Yes	Yes
Cons	-61.31(-4.63)***	-19.38 (-1.72)*	-51.77 (-9.50)***	.76 (0.87)
P- value	0.000	0.000	0.000	0.000
Obs	302	302	216	216
Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.				

Source: Authors' own work

**Table 10. Second Robustness analysis (OVERC, IFRS 16 and Firm risk using GMM )**

	Panel (A)		Panel (B)	
	DA		SRV	
	1	2	1	2
	Coef (Z)	Coef (Z)	Coef (Z)	Coef (Z)
DA.L1	.472 (12.15)***	.346 (4.75)***	-	-
SRV.L1	-	-	.028 (0.25)	.204 (3.42)***
ROUA	1.34 (5.28)***	-	.56 (3.51)***	-
IFRS 16	-	.214 (13.77)***	-	.183 (16.36)***
OVERC	.034 (5.12)***	.025 (2.09)**	-.014 (-1.24)	-.002 (-0.28)
OVERC × ROUA	-0.22 (-1.60)	-	-.047 (-0.48)	-
OVERC × IFRS 16	-	-.039 (-2.22) **	-	-.029 (-2.16)**
Cov-19	-.007 (-0.71)	-.047 (-4.74)***	.037 (2.42)**	-.028 (-1.92)*
ROA	.123 (2) **	-.096 (-1.49)	.013 (0.18)	.0451 (1.48)
SZ	-.005 (-0.77)	-.011 (-1.38)	.001 (0.17)	.008 (1.46)
Big4	.052 (1.84) *	-.002 (-0.09)	.044 (1.22)	.0151 (1.55)
Age	-.017 (-2.50)**	-.013 (-2.48)**	-.004 (-1.77) *	.005 (0.68)
BGD	.322 (3.42)***	.076 (1.47)	.28 (2.68) *	.010 (0.19)
Bsize	-.038(-1.01)	-.081(-1.52)	-.027(-1.24)	-.010(-0.64)
Indep	-.123(-0.45)	-.273(-1.19)	.096 (0.31)	-.050(-0.22)
Dual	.564(1.64)	.486(1.54)	-.278(-0.65)	.143(0.44)
Firm- effect	Yes	Yes	Yes	Yes
Year- effect	Yes	Yes	Yes	Yes
Cons	-63.71 (-3.95)***	-5.83 (-1.04)	-51.62 (-9.51)***	11.71 (0.61)
P-value	0.000	0.000	0.000	0.000
Obs	302	302	216	216

Notes: \*\*\*, \*\*, and \* represent significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' own work

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