# Does the implementation of IFRS improve transparency regarding the company's financial conditions?: evidence from an emerging market

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## Abstract

**Purpose** – This study aims to examine whether there are differences between financial statements prepared in accordance with International Financial Reporting Standards (IFRS) and financial statements prepared in accordance with local accounting standards in terms of its ability to present the financial conditions of companies listed on the Saudi Stock Exchange as one of the emerging markets.

**Design/methodology/approach** – Data on study variables were obtained from the published financial statements of 67 of listed companies in the Saudi Stock Exchange during the period 2014–2019. The study addressed the research hypotheses by using Altman Z-score model. Both the $T$-test and Wilcoxon rank test were used to investigate the significance of differences between the values of Z-score and the individual variables included in the model in the pre- and post-IFRS mandatory adoption periods.

**Findings** – The results revealed a decrease in the values of Z-score as well as the values of the individual variables included in the model in the period following the adoption of IFRS than it was before the adoption of IFRS, which indicates the ability of IFRS to show the financial conditions of companies more transparently than local accounting standards. However, the results of the $T$-test and Wilcoxon test showed that these decreases were not statistically significant.

**Research limitations/implications** – This study has some limitations, including the small sample size as a result of the small size of the Saudi Stock Exchange, As well as the reliance of this study only on the Altman model with its five variables in assessing financial conditions without examining the impact of other factors that may affect the financial conditions of companies.

**Practical implications** – Financial conditions of the companies have important implications for multiple parties such as management, government, investors and others as an early warning sign that enables them to take the necessary measures early before the actual bankruptcy occurs and what results in costs.

**Originality/value** – Although assessing financial conditions of the companies is one of the basic uses of accounting information, this topic has not received sufficient attention as a means to test the benefits of adopting IFRS, especially in emerging markets such as Saudi Stock Exchange. This is the first study to examine the impact of adopting IFRS on the transparency of financial reporting in assessing financial conditions in Saudi Arabia.

**Keywords** IFRS, Financial conditions, Z-score, Saudi Arabia

**Paper type** Research paper

## 1. Introduction

The main objective of the financial statements is to present the company's financial information to stakeholders, which helps them understand the company's performance and financial position, in addition to helping them reveal the company's financial soundness,

which enables them to make appropriate economic decisions. In fact, the quality of information included in the financial statements is the result of the quality of accounting standards that were applied in preparing these statements. The quality of accounting standards may vary among countries depending on the different institutional factors in these countries. Accordingly, IFRS has been promoted as one set of high-quality standards that leads to the preparation of more quality and more comparable accounting information (Ebaid, 2021; Hameedi et al., 2021; Fossung et al., 2020; George and Shivakumar, 2016). IFRS supporters have argued that they are high quality principles-based standards that improve transparency by improving disclosure, better comparability between countries, which can reduce information asymmetry (Daske et al., 2013; Lambert et al., 2007; Botosan and Plumlee, 2002). However, the majority of the current literature has focused on examining the effects of IFRS adoption on equity markets (e.g. George and Shivakumar, 2016; Daske et al., 2013; Barth et al., 2008). Predicting company's financial conditions is the key factor in credit risk management and is therefore important for academics, regulators and practitioners (Bărbută-Misu and Madaleno, 2020). Several studies in finance have shown the importance of predicting financial soundness and the possibility of financial distress in companies. Mahama (2015) argues that an early warning signal of potential failure will enable management, investors and other stakeholders to take the necessary precautions. Warning signs help management predict corporate problems early enough to avoid financial difficulties, thus contributing to a stable business and financial environment (Gharaibeh et al., 2013; Ray, 2011). According to Vuran (2009), the development and use of predicting models can be very important in two different ways. First, as "early warning systems" such models are very useful to managers, authorities [. . .], etc. Second, such models can be useful in aiding decision making of financial institutions in firms' evaluation and selection.

In fact, financial statements prepared according to IAS/IFRS give a different set of data as compared to data based on financial statements according to local accounting standards. Since the input variables for the prediction models used to predict financial conditions are often derived from the financial statements, it is expected that the outputs of these models will be affected by the different standards used in preparing these statements. Accordingly, it is important to examine whether there is a difference in the outputs of these models after implementing IFRS from what they were when implementing the local standards. This study aims to explore the impact of the adoption of IFRS in Saudi Arabia on the ability of financial statements to predict the financial conditions of companies. The study examined a sample of 67 annual financial statements from companies listed in the Saudi Stock Exchange based on International Financial Reporting Standards (IFRS) and Saudi local standards during the period 2014–2019. The study predicted the company's financial conditions using the modified Altman (1993) model. The results of the study indicate that financial statements based on IFRS result in better transparency regarding financial conditions prediction, compared to those based on Saudi local standards. However, this increase in transparency was not statistically significant.

In fact, this study is important for two reasons. First, this study examines the impact of the adoption of IFRS on predicting financial conditions, an issue that has not been extensively researched in the literature. Over the past years, most prior studies have focused on examining the various economic consequences of adopting (or converging) IFRS in the context of the stock market such as impact of adopting IFRS on value relevance (e.g. Ates, 2021; Ebaid, 2021; Güleç, 2021; Lopez et al., 2020; Cordazzo and Rossi, 2020; Christiansen et al., 2015; Müller, 2014; Ahmed et al., 2013; Tsalavoutas et al., 2012), market liquidity (e.g. Daske et al., 2013; Dhaliwal et al., 2013), analysts' earnings forecasts (e.g. Kwon et al., 2019; Masoud, 2017; Byard et al., 2011; Tan et al., 2011), foreign ownership (e.g. DeFond et al., 2011; Covrig et al., 2007), institutional holding (e.g. Florou and Pope, 2012) and cost of capital (e.g. Habib et al., 2019; Kim and Ryu, 2018). Second, to my knowledge, this study is the first study that

examines the benefits of adopting IFRS on predicting financial conditions in the Saudi market. The impact of the adoption of IFRS can vary from country to country depending on the different cultural and local characteristics of the economy, which are shaped not only by the specific legal environment and tax regulations but also according to the custom and general thinking of the accounting profession, managers, regulators, etc. (Albu and Albu, 2010). Therefore, the findings of studies in one country may not apply to another. Accordingly, it becomes necessary to study the impact of IFRS adoption in each country separately in the context of this country, which is what this study does as it examines the impact of IFRS adoption in the Saudi context. To achieve this purpose, the rest of the paper is organized as follows. The second section presents the literature and formulation of the research hypothesis. The third section presents the methodology of the study. The fourth section presents the results of the study. The fifth section presents a discussion of the findings while the sixth section presents the conclusion and the limitations.

## 2. Adoption of IFRS in Saudi Arabia

In Saudi Arabia, the Saudi Organization of Certified Public Accountants (SOCPA) is the body responsible for issuing and developing accounting and auditing standards. Since its establishment in 1991 until 2012, SOCPA has issued a set of standards, consisting of two standards for the conceptual framework of the financial reporting, one standard for zakat, in addition to 20 accounting standards to address the items of financial statements. It is noted that these local Saudi standards have been built on the background of international accounting standards (IAS) with some differences. In 2012, SOCPA has approved an IFRS convergence plan, called the "SOCPA Project for Transition to International Accounting and Auditing Standards". In 2016, SOCPA adopted all of the IFRS Standards (including interpretations) without amending any requirements in those standards. Under this convergence plan, all listed companies are required to adopt IFRS for financial periods beginning on or after January 1, 2017. Also, the Saudi Arabian Monetary Authority (currently called Saudi central bank) has required all banks and insurance companies to implement IFRS for financial periods beginning on or after January 1, 2017. SOCPA argues that the transition to IFRS promises transparent, comparable and consistent financial information to guide investors in making optimal investment decisions. Some of the key benefits that the companies will enjoy from IFRS adoption include increased foreign direct investment (FDI), enhanced quality reporting, transparency and comparability and more transparency to perform risk assessments on financial statements and other ratios. SOCPA has also endorsed an integrated set of auditing standards based basically on International Auditing Standards. All accounting firms in Saudi Arabia are required to adopt these integrated set of auditing standards for financial periods beginning on or after January 1, 2017. Because the business sector is important in achieving the objectives of Saudi Arabia's economic vision 2030, and this includes not only large (listed) entities but the much more numerous small and medium-sized entities (SMEs), SOCPA adopted IFRS for SMEs as of January 2018. All SMEs in Saudi Arabia are required to adopt IFRS for SMEs for financial periods beginning on or after January 1, 2018.

In fact, there are some differences between Saudi local standards and IFRS (for more details see: Nurunnabi, 2017). On one hand, there are some local standards that were applied in Saudi Arabia that have no equivalent in IFRS such as the standard of administrative and marketing expenses and the standard of zakat and income tax. This may result in some changes in the rules for matching expenses with revenues after implementing the IFRS. On the other hand, there are some differences between Saudi local standards and IFRS with regard to the measurement of financial statement items. For example, while IFRS 2 prohibited the use of LIFO method when measuring inventory cost, this method was not prohibited

according to local standards. According to the Saudi inventory standard, the cost of goods sold is determined on the basis of the weighted average method, and if the company is not able to apply this method, it is allowed to apply FIFO method or LIFO method. Also, the Saudi inventory standard requires that the inventory should be evaluated at cost or the market price, whichever is less, while the IFRS 2 stipulates the evaluation of the inventory at the cost or the realizable value, whichever is less. IFRS 16 specifies one accounting model for a lessee that requires it to recognize assets and liabilities for all lease contracts, unless the lease period is 12 months or less or the asset is of low value. On the contrary, Saudi local standards allow the lessee to treat the lease contracts as capital or operating contracts. The Saudi revenue standard requires that revenue to be measured on the basis of the price determined in the exchange process, while the IFRS 15 requires revenue to be measured on the basis of fair values. Saudi local standards require the use of historical cost in measurement of property, plant and equipment, while IAS 16 allows the fair value to be used as a measurement method for property, plant and equipment. These and other differences between Saudi local standards and IFRS may have an impact on the information included in the published financial statements as a result of changes in the methods of measuring some items in the financial statements, and then these differences may have an impact on the financial ratios calculated from these financial statements. Accordingly, this study attempts to examine the impact of these differences on the financial ratios calculated from the financial statements, which can help users in analyzing the financial soundness of the company.

## 3. Literature review and hypotheses development

Beaver et al. (2012) conclude that financial reporting characteristics associated with reporting quality, such as management reporting discretion and recognition of losses, affect the predictive power of accounting information. IFRS is expected to influence financial reporting in many aspects due to more comprehensive and informative disclosures, better measurement and recognition rules, and improved comparability (Hail et al., 2010). With the growing trend of the adoption of IFRS, several studies have focused on examining the effect of implementing IFRS on the financial statements' numbers. Fitó et al. (2013) demonstrated that noncurrent assets, equity, reserves and long-term liabilities have changed significantly after the adoption of IFRS in Spain. Lantto and Sahlstrom (2009) indicated an increase in profitability ratios, decreased liquidity and market-based financial ratios after the implementation of IFRS in Finland. In the UK, Punda (2011) showed that while all profitability ratios showed a huge and significant increase, liquidity ratios indicated insignificant increase after the implementation of IFRS. Cordazzo (2013) pointed out that the impact of the application of IFRS in Italy on net income more than the impact on equity. Istrate (2014) found that the implementation of IFRS in Romania has resulted in an increase in the equity ratios and leverage ratios, while there was a decrease in the profitability ratios.

The impact of the implementation of IFRS on the ability of financial statements to assess the financial soundness of the company is one of the controversial issues in the literature. On the one hand, proponents of IFRS argue that fair value accounting and other related IFRS rules, such as recognition of impairments under IAS 36 and recognition of pension liabilities under IAS 19, should lead to more timely recognition of economic losses which positively affects the ability to predict the financial health of the company (Fossung et al., 2020; Hail et al., 2010; Watts, 2003). Charitou et al. (2015) found that the losing companies show the same or better financial characteristics in the pre-IFRS adoption period compared to their profitable counterparts, while after implementing the IFRS the losing companies show deteriorating characteristics compared to their profitable counterparts. El-Gazzar et al. (1999) examined the objectives of companies that voluntarily adopted IAS and found that adoption of IAS provides creditors with a better understanding of the credit risks to which companies are

exposed. Kim *et al.* (2011) documented that the implementation of IFRS correlates positively with loan amounts and negatively with interest rate levels which enhancing the ability of the borrower who adopts IFRS to raise debt at a lower cost. Wu and Zhang (2014) found that the importance of accounting information for corporate credit ratings has increased after the adoption of IFRS. Florou and Kosi (2017) found that the adoption of IFRS is associated with an increase in bond issuance and a decrease in interest rates on these bonds. de Lima *et al.* (2018) found that companies that adopt IFRS have greater access to debt market.

On the other hand, opponents of the IFRS argue that fair value accounting may reduce accounting conservatism and adversely affect reliability as a result of recognizing unrealized economic gains, such as those related to trading securities and other financial instruments, in accordance with IAS 39 and IFRS 9 (Ball *et al.*, 2014b). IFRS also requires the recognition of transitory losses and gains in the income statement, which may weaken the usefulness of this statement in predicting the borrowing company's ability to service future debts (Ball *et al.*, 2014a; Armstrong *et al.*, 2010). IFRS also include extensive use of estimates and judgments in valuing assets and liabilities, which can reduce the reliability of financial statements and increase opportunities for opportunism and earnings manipulation (Florou and Kosi, 2017; Ball *et al.*, 2014a). Bhat *et al.* (2014) concluded that the implementation of IFRS did not change the creditworthiness of accounting information. Wu and Zhang (2014) documented a significant increase in the sensitivity of credit ratings with the adoption of IFRS. Chen *et al.* (2015) provided evidence of an increase in syndicated loan costs and a decrease in maturity for borrowers using IFRS. Ball *et al.* (2015) found that the number of debt covenants based on accounting information has decreased after the adoption of IFRS, which means that the adoption of IFRS has reduced the contractual role of financial statements. Also, Beiruth *et al.* (2017) noticed a significant increase in debt covenants that do not rely on accounting information after the adoption of IFRS. Kraft and Landsman (2020) found no clear evidence of the credit relevance of accounting information after the adoption of IFRS.

Some studies have tried to predict the potential bankruptcy of companies using financial statements prepared in accordance with IFRS to examine the extent of improvement in the prediction compared to the financial statements prepared in accordance with local accounting standards. Kubíčková and Jindřichovská (2014) found that the implementation of IFRS reduced the value of the *Z*-score computed from the Altman (1968)'s model, on average, by 10% than it was under Czech accounting standards. Using Altman (1968)'s model, Bodle *et al.* (2016) found that financial statements prepared based on IFRS improved bankruptcy prediction compared to financial statements prepared based on Australian GAAP. Using logistic regression, Kainth and Wahlstrøm (2021) indicated that financial statements prepared under IFRS were more suitable for bankruptcy prediction than those prepared in accordance with Norwegian accounting standards. This study contributes to this few numbers of studies that attempted to examine the role of IFRS implementation in improving the prediction of financial conditions by examining the impact of IFRS implementation in improving the prediction of companies' financial conditions in Saudi Arabia. The main hypothesis of the study can be formulated in the form of the null hypothesis as follows:

*H0.* There is no significant difference between the Altman's *Z*-score calculated from financial statements prepared according to IFRS and the Altman's *Z*-score calculated from financial statements prepared according to Saudi accounting standards.

## 4. Research methodology
### 4.1 Data and sample
The mandatory adoption of the IFRS in Saudi Arabia began with the fiscal year beginning on January 1, 2017. When determining the post-mandatory adoption period, the financial

statements for the fiscal year 2020 were excluded due to the fact that this year witnessed exceptional circumstances as a result of the complete closure of the Saudi economy as part of the precautionary procedures of Covid-19 pandemic, which had a significant impact on financial statements of all Saudi companies. Consequently, the study defined the post-mandatory adoption period to include three years, namely 2017, 2018 and 2019. To achieve consistency in the comparison, the study defined the pre-mandatory adoption period to include also three years, namely 2014, 2015 and 2016. Accordingly, the study period includes six years: three years before the mandatory adoption of IFRS (2014–2016) and three years after the mandatory adoption of IFRS (2017–2019).

The study population includes all companies listed in the Saudi Stock Exchange (Tadawul). By the end of 2019, the number of companies listed in the Saudi market reached 173 companies distributed over 20 sectors. In the first step for selecting the sample, the 45 financial companies (i.e. banks and insurance companies) were excluded, as the nature and methods of measuring some items of the financial statements of these companies differed to some extent from the financial statements of non-financial companies due to their subjection to special legislation in addition to IFRS. In the second step, 61 other companies were excluded from the study population for various reasons such as some companies were listed in the Saudi Stock Exchange after the year 2014, and then their published financial statements on the Saudi Stock Exchange website do not cover the entire study period. Also, some companies were merged into other companies during the study period, and then no longer had their own published financial statements. In addition, some companies whose registration in the stock exchange was canceled during the study period. After these two steps, the remaining 67 non-financial companies represent the sample for this study. Table 1 shows the distribution of the study sample among sectors.

*4.2 Variables and measurements*
Since the main purpose of the study is to examine the effect of accounting standards on predicting financial conditions of the sample companies, the appropriate model for use in this study is the Altman $Z$-score model. This model includes a number of sub-financial indicators that can be calculated directly from the financial statements prepared according to a specific type of accounting standards (i.e. IFRS and Saudi accounting standards). Those sub-financial indicators test different aspects of the financial condition and efficiency of companies, those that are most sensitive to future financial problems. Altman (1968), in his original model, used the market value of the equity in the numerator of the variable X4. Since the market value of equity is not available through the Saudi Stock Exchange website throughout the entire study period, instead, Altman's (1993) revised model was used, using the book value of

| Sector | Number of companies | Percentage |
| --- | --- | --- |
| Basic industries | 25 | 37.3 |
| Telecommunications | 4 | 5.9 |
| Food production | 12 | 17.9 |
| Transportation | 5 | 7.5 |
| Real estate development | 6 | 8.9 |
| Capital goods | 7 | 10.5 |
| Retail trade | 3 | 4.5 |
| Healthcare | 2 | 3 |
| Pharmaceutical | 1 | 1.5 |
| Applications and technology services | 1 | 1.5 |
| Media and entertainment | 1 | 1.5 |
| Total | 67 | 100 |

**Table 1.**
Distribution of the sample across sectors

equity. Book value of equity was calculated by subtracting total liabilities from total assets. Accordingly, the model used to predict financial conditions in this study is:

$$Z = 0.717(X1) + 0.847(X2) + 3.107(X3) + 0.420(X4) + 0.998(X5)$$

where:

X1 = Working Capital/Total Assets

X2 = Retained Earnings/Total Assets

X3 = Earnings before Interest and Tax/Total Assets

X4 = Book value of Equity/Total Debt

X5 = Net Sales/Total Assets

It is noted that all of the sub-indicators included in the model are based on the data reporting in the financial statements. When the calculation shows that $Z$ is less than 1.23 "Distress Zone", the company is in danger of bankruptcy. The result between 1.23 and 2.90 "Grey Zone" represents the company that is likely will not bankrupt and $Z$ above 2.90 "Safe Zone" says that the company has a good financial health and it is highly probable that it will continue in the market (Altman and Hotchkiss, 2006). In fact, this model has been proven to perform well across different country settings (Altman *et al.*, 2017) and is widely used by practitioners and academics (e.g. Kainth and Wahlstrøm, 2021; Ntoung *et al.*, 2020; Vo *et al.*, 2019; Tian and Yu, 2017; Bodle *et al.*, 2016; Appiah *et al.*, 2015; Tian *et al.*, 2015; Mansi *et al.*, 2012). This study compares two predictions of company's financial conditions based on the Z-Score model, one using the financial statements prepared in accordance with the IFRS (2017–2019) and the other using the financial statements prepared in accordance with the Saudi accounting standards (2014–2016).

## 5. Analysis and results
### 5.1 Test of multicollinearity
The $R^2$ which is the Ordinary least square (OLS) determination coefficient was calculated with the variable $i$ as the regress and the remaining variables as the regressors. The variance inflation factor $VIF_i$ for each variable can take any value higher than one. The lower the $VIF_i$, the lower the multicollinearity will be. Tables 2 and 3 present the $VIF_i$ values for each variable

| Variable | X1 | X2 | X3 | X4 | X5 | VIFi |
|---|---|---|---|---|---|---|
| X1 |  |  |  |  |  | 1.28 |
| X2 | 0.19 |  |  |  |  | 1.41 |
| X3 | −0.27 | −0.31 |  |  |  | 1.21 |
| X4 | −0.22 | −0.29 | −0.26 |  |  | 1.37 |
| X5 | 0.18 | 0.34 | 0.21 | 0.34 |  | 1.17 |

Table 2.
The variance inflation factor (VIFi) for IFRS

| Variable | X1 | X2 | X3 | X4 | X5 | VIFi |
|---|---|---|---|---|---|---|
| X1 |  |  |  |  |  | 1.57 |
| X2 | 0.0.21 |  |  |  |  | 1.38 |
| X3 | −0.29 | −0.38 |  |  |  | 1.96 |
| X4 | −0.33 | −0.32 | −0.34 |  |  | 1.24 |
| X5 | 0.21 | 0.29 | 0.24 | 0.28 |  | 1.35 |

Table 3.
The variance inflation factor (VIFi) for Saudi standards

PRR

in the model using the financial statements prepared in accordance with IFRS and Saudi standards, respectively, in addition to the correlations between the pairs of variables included in the model. From Tables 2 and 3, it is noted that there is no evidence of an unacceptable multicollinearity for the set of variables included in the model at a level of significance of 5%.

*5.2 Altman Z-score calculations*
In this section, the values of the model variables were calculated using the financial statements for the six years covered by the study. Table 4 displays these values. From Table 4, it can be seen that there are differences in Z-score values in the two periods before and after the adoption of IFRS. It can also be noted that the Z-score values in the years 2017, 2018 and 2019, in which the IFRS were implemented, show a worse financial health for companies compared to the values of Z-score in the years 2014, 2015 and 2016 which are the period of implementation of the Saudi standards.

*5.3 Altman Z-score – paired* t-*test*
In this section, the significance of the differences between the two sets of financial ratios and the Z-score values in the periods before and after the adoption of IFRS is evaluated. Due to the small sample size used in this study, a *t*-test will be used to test the significance of mean differences and then the nonparametric Wilcoxon test will be used. *T*-test is a test based on the assumption that the two samples are normally distributed. Wilcoxon rank test is a test that does not make assumptions about the probability distributions of the variables being evaluated. These two tests will be used to test the null hypothesis of the study that the values of the two sets of variables in addition to the values of Z-score do not differ at the 5% level of significance. Results of using the *t*-test are summarized in Table 5. As can be seen from Table 5, all model variables showed a worsening in the period of implementation of IFRS (2017–2019) compared to the Saudi standards implementation period (2014–2016). This may indicate that the implementation of IFRS has led to an increase in the transparency of the financial statements and to show the true financial health of the company compared to the Saudi accounting standards. The variable X3 (Earnings before interest and tax/total assets) witnessed the largest decreases, as its value was decreased by 25.69%, as it was in the period of implementation of the Saudi standards, while the variable X4 (Book value of equity/total debt) witnessed the least decreases, as it was decreased by 5.73% than it was during the period of implementing the Saudi standards. As for the Z-value, it is noted that it decreased in the period of implementing IFRS by 34.25% compared to the period of implementing Saudi accounting standards. This result may indicate that the implementation of IFRS has shown the financial health of companies worse than it was during the period of implementation of Saudi accounting standards. However, by looking at the *t* values in Table 5, it is noted that all decreases were not significant at a significance level of 5% whether for individual variables or the value of Z-score. These results clearly indicate that there is no evidence that the individual model variables or the Z-score value were affected significantly by the

|  | X1 | X2 | X3 | X4 | X5 | Z-score |
| --- | --- | --- | --- | --- | --- | --- |
| 2014 | 0.745 | 0.082 | 0.268 | 0.518 | 0.789 | 2.31 |
| 2015 | 0.821 | 0.091 | 0.297 | 0.596 | 0.821 | 2.67 |
| 2016 | 0.839 | 0.089 | 0.299 | 0.612 | 0.832 | 2.63 |
| 2017 | 0.689 | 0.077 | 0.222 | 0.589 | 0.743 | 1.57 |
| 2018 | 0.635 | 0.079 | 0.218 | 0.538 | 0.788 | 1.79 |
| 2019 | 0.587 | 0.068 | 0.202 | 0.498 | 0.737 | 1.67 |

Table 4.
Calculations of Altman Z-score model

| | | Mean | Standard deviation | t-test | Sig | $H_0$ |
|---|---|---|---|---|---|---|
| X1 | Saudi standards | 0.802 | 0.391 | 0.963 | 0.096 | accept |
| | IFRS | 0.637 | 0.297 | | | |
| | difference | −0.165 (20.57%) | | | | |
| X2 | Saudi standards | 0.087 | 0.178 | 0.768 | 0.091 | accept |
| | IFRS | 0.075 | 0.221 | | | |
| | difference | −0.014 (14.43%) | | | | |
| X3 | Saudi standards | 0.288 | 0.317 | 0.997 | 0.086 | accept |
| | IFRS | 0.214 | 0.298 | | | |
| | difference | −0.074 (25.69%) | | | | |
| X4 | Saudi standards | 0.575 | 0.171 | 0.881 | 0.099 | accept |
| | IFRS | 0.542 | 0.201 | | | |
| | difference | −0.033 (5.73%) | | | | |
| X5 | Saudi standards | 0.814 | 0.432 | 0.497 | 0.097 | accept |
| | IFRS | 0.756 | 0.338 | | | |
| | difference | −0.058 (7.12%) | | | | |
| Z- score | Saudi standards | 2.54 | 0.237 | 0.672 | 0.088 | accept |
| | IFRS | 1.67 | 0.307 | | | |
| | difference | −0.87 (34.25%) | | | | |

**Table 5.**
*T*-test results

implementation of IFRS in Saudi Arabia. These results lead to the acceptance of the null
hypothesis that there is no significant difference between the Altman's *Z*-score calculated
from financial statements prepared according to IFRS and the Altman's *Z*-score calculated
from financial statements prepared according to Saudi accounting standards.

*5.4 Altman Z-score – Wilcoxon rank test*
In this section the differences between the two sets of indicator values are examined using
Wilcoxon test. Table 6 presents the results related to the Wilcoxon rank test. Again, by
looking at Table 6, it is noted that there is no evidence of significant differences in the periods
after and before the adoption of IFRS in Saudi Arabia, whether with regard to the individual
variables of the model or the value of *Z*-score. This result confirms once again the acceptance
of the null hypothesis that there is no significant difference between the Altman's *Z*-Score
calculated from financial statements prepared according to IFRS and the Altman's *Z*-Score
calculated from financial statements prepared according to Saudi accounting standards.

**6. Discussion**
The results of the study, as can be seen above, indicate that the implementation of IFRS has
led to an increase in the transparency of the financial statements, as the results showed a
decrease in the value of *Z*-score, as well as the values of the individual variables included in

| | Wilcoxon-test | | | |
|---|---|---|---|---|
| | W+ | W− | Critical value $\alpha = 0,05$ | $H_0$ |
| X1 | 291 | 169 | 121 | accept |
| X2 | 268 | 146 | 117 | accept |
| X3 | 302 | 167 | 127 | accept |
| X4 | 278 | 118 | 137 | accept |
| X5 | 328 | 211 | 137 | accept |
| Z-score | 342 | 115 | 169 | accept |

**Table 6.**
Results of Wilcoxon
rank test

the Altman's model in the period of IFRS implementation compared to the period before the IFRS implementation. In general, these results indicate that the implementation of IFRS leads to showing the financial health of companies more accurately than it was during the implementation of Saudi accounting standards. However, the results showed that this improvement in transparency was not statistically significant. The implementation of IFRS in Saudi Arabia did not result in a significant change in the value of Z-Score. Also, the implementation of IFRS did not result in a significant change in the individual indicators included in the Altman's model. In fact, these results are consistent with the results of some previous studies conducted in other countries, which indicated that there was no significant impact of the implementation of IFRS on the financial statements and ratios calculated based on them. For example, Kalra and Vardia (2016) and Qadri (2019) revealed that the adoption of IFRS in India has no significant impact on financial statements figures and key financial ratios. Dalcı and Özyapıcı (2017) found that the first-time IFRS adoption has no significant impact on the key financial ratios of listed companies in Turkey. Nwaogwugwu (2020) concluded that the adoption of IFRS did not lead to significant changes in financial statements information in Nigeria. Turki et al. (2020) found that there was no direct impact of the implementation of IFRS on the financial ratios of companies in France. On the other hand, the results of this study contradict the results of some previous studies conducted in other countries. For example, Kubíčková and Jindřichovská (2014)'s study which found that the implementation of IFRS in the Czech Republic led to a significant change in the value of Z-score in addition to a significant change in some individual indicators of the model, especially the second indicator (the ratio of retained earnings to total assets) and the fifth indicator (the ratio of sales to total assets). The results of this study also contradict Kainth and Wahlstrøm (2021)'s study, which documented a significant change in the value of Z-score and all the indicators included in the model in all the years following the implementation of IFRS in Norway. The inconsistency of the results of the current study with the results of some previous studies may be explained from two perspectives. The first perspective is the cultural factor. Mueller et al. (1994) argue that accounting practices are shaped by the environment in which accounting operates. Just as countries differ in history, values and political systems, they also have different patterns of accounting measurements and financial reporting practices (Kanagaretnam et al., 2014). Accounting discretions and estimates are made by managers or board members. These individuals, whether they are aware of it or not, are influenced by the culture and their behavior reflects this. In fact, IFRS are principle-based standards, which mean that they allow a great deal of flexibility in their implementation. Supporters of IFRS affirmed that the transition to IFRS introduces accounting rules intended to increase conservative accounting measurement compared to domestic GAAP. Even though IFRS provide managers with flexibility in the implementation of the standards, they lead to more conservative reporting practices (Guermazi and Halioui, 2018; Bonetti et al., 2017). In this regard, the cultural variable may play an important role in influencing how IFRS are implemented. Guermazi and Halioui (2020) argue that avoiding uncertainty and individualism is the most cultural dimension affecting behavior when implementing IFRS through its impact on accounting measurement. They document that conservative accounting measurement in the post-IFRS period is higher in countries where individualism is lower and where uncertainty avoidance is higher. Saudi Arabia, like all other Arab countries, is characterized by a strong level of uncertainty avoidance and weak level of individualism (Gray, 1988). Therefore, it is expected that the level of conservatism in the accounting measurement will be high in Saudi companies either before or after the implementation of IFRS. This high degree of conservatism indicates the high quality of accounting information in the financial statements of Saudi companies, whether before or after the implementation of the IFRS. Al-Shattarat (2021) examines earnings management for a sample of companies listed on the Saudi Stock Exchange from 2014–2018 and found that

the use of short-term discretionary accruals to manage earnings is significantly low, whether in the period before the implementation of IFRS or the period after the implementation of IFRS. The second perspective is the main accounting policies adopted by companies. Referring to the notes on the financial statements of the sample companies, it was noted that the implementation of IFRS did not lead to significant changes in the accounting policies. For example, all the sample companies depended on the weighted average method to measure the cost of inventory and continued on this method after implementing the standards. Although IAS 16 allows a company to choose between a cost model and a fair value model in the subsequent measurement of property, plant and equipment, all companies in the sample continued to use the cost model in the post-IFRS implementation period. This means that there is no significant change in the book values of total assets, which is the denominator of most variables in the Altman model.

## 7. Conclusion and limitations

The economic consequences of adopting IFRS have received the attention of a large number of studies in recent years. However, most of these studies focused their attention on examining the consequences of applying IFRS on the capital market. Few studies have examined the appropriateness of IFRS- based accounting information for predicting company's financial conditions. This study contributes to this trend by examining the impact of adopting IFRS on the ability of accounting information to predict company's financial conditions in Saudi Arabia. Depending on a sample of companies listed in the Saudi Stock Exchange for the period 2014–2019, and by using Altman $Z$-score model, the study concluded that there is no evidence of a significant change in the ability of accounting information to predict company's financial conditions after implementing the IFRS than it was before the IFRS were implemented. In fact, this study may have practical implications for several parties. For companies listed in the stock exchange, financial conditions prediction provides an early warning sign that management can deal with early and thus avoid the negative effects of bankruptcy. For the government, financial conditions prediction studies help draw its attention to the need for regulatory agencies to set appropriate measures to protect the dealers in the exchange market who bear a large amount of losses as a result of companies' bankruptcy. For investors, financial conditions prediction studies provide them with a basis that they can rely on in distinguishing between financially sound and financially unsound companies, which helps them in increasing the efficiency of allocating their capital.

However, this study is not without limitations that may weaken the ability to generalize its results. Among these limitations is the study's reliance only on Altman's model with its five known variables. Future studies can use other models to predict the company's financial health. Another limitation is the study's reliance on only the accounting information published in the company's financial statements. The study did not address the impact of differences in the characteristics of companies. Future studies can use research designs that allow examining the impact of the company's characteristics (e.g. company size, board attributes, ownership structure, [. . .], etc.) on predicting financial conditions. Also, the study suffers from a lack of control over other factors that may have an impact on the financial performance of companies between the study periods (2014–2016) and (2017–2019), such as factors that affect the economy in general and/or the performance of publicly traded companies in particular. However, these factors may not have a significant impact on the deterioration of the companies' performance, as all indicators of the Saudi economy witnessed an improvement during the period after the implementation of the IFRS (2017–2019) than it was in the period before the implementation of IFRS (2014–2016). For example, the gross domestic product (GDP) in billion riyals from 2014 to 2016 amounted to 626,996, 653,819, and 667,661, respectively, while it amounted to 658,896, 689,686 and 687,522 in the period from 2017–2019, respectively. Also, the Saudi stock exchange index has witnessed an improvement during the study period. In the period from 2014 to 2016,

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the index reached 6,912, 8,333 and 7,210 points, respectively, while it reached 7,226, 7,827 and 8,389 points in the period 2017–2019, respectively. Also, the study period did not witness sharp changes in the price indices. The consumer price index during the period from 2014–2016 reached 102.2, 103.5 and 105.6, respectively, considering 2013 as the base year, while it reached 104.7, 106.2 and 104.4, respectively, in the period from 2017–2019, given that 2013 is the base year (General Authority for Statistics, 2021). Another limitation is the small sample size as a result of the small size of the Saudi Stock Exchange at the present time. With the expansion of the Saudi exchange market in the near future as a result of the efforts of the Saudi government to support the exchange market by supporting the private sector and encouraging it to list its shares in the market, in addition to offering the shares of a number of public companies in the market, future studies can use a larger sample. The study also relied only on a sample of non-financial companies, and financial companies such as banks and insurance companies were excluded due to the different methods of measuring and presenting some items in the financial statements of these companies from the non-financial companies. Future studies can apply the current study methodology or other methodologies to a sample of these financial companies.

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**Further reading**

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