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THE ROLE OF EARNINGS QUALITY IN PREDICTING FINANCIAL FAILURE

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Abstract
This study seeks to determine how earnings quality predicts financial failure and shapes predictive model capabilities. The study sample includes 35 Iraq Stock Exchange-listed corporations between 2014-2020. To measure earnings quality models, the required data was collected between 2009 and 2021. The study's findings suggest that incorporating earnings quality models boosts the predictive power of both Altman (1968) and Ohlson (1980) models. Results also show that Altman's model, modified with the earnings quality variable, scored higher than Ohlson's in predictive power.

Keywords: financial failure, forecasting financial failure, quality of profits.

Introduction

In recent decades, due to the expansion of business units, increased economic activity, market competitiveness, cycles of recession and inflation, the number of financially incapacitated companies has increased. The issue of bankruptcy and financial failure is always one of the most controversial issues for investors, creditors, managers, accountants and employees, affecting them significantly (Hussein et al, 2018). In general, failure refers to a situation where an entity cannot fully meet its obligations to creditors or may experience financial problems during its operation. On the other hand, financial failure is likely to lead to bankruptcy, so it is important to find ways to predict financial failure before reaching bankruptcy. Hence, investors are generally looking for ways to predict a company's financial situation before reaching bankruptcy. In general, financial failure generates huge costs for companies (all stakeholders) and at the macroeconomic level. In other words, timely detection of financial failure is the first step in choosing the right ways out of bankruptcy and preventing it. In fact, identifying and predicting financial failure does not necessarily prevent bankruptcy, as business entities are severely affected by a range of measures that management uses to address financial failure (Mehrani et al, 2012). Also, in economic affairs, users of financial statements always need useful information in decision-making and analysis. One of the useful information provided by the accounting system is the profit and loss statement (Mansoorfar, 2017).

The results of previous research suggest that decision-makers rely on profit more than any other criterion. There is also empirical evidence that disclosed earnings have been shown to be dependable for entity-specific details for market participants. These earnings also are considered as effective predictors of future cash flows and yield richer insights into a

company's financial vitality and functional prowess than what cash flows can show individually. They are also carefully viewed by participants (especially investors and analysts) in the financial markets and are more reliable than other valuation criteria (Gaio and Raposo, 2011). Therefore, most research suggests that earnings have better predictive power than operating cash flow. Therefore, the explanatory power of accounting profit is greater than the operating cash flows of dividends and receivables, and accounting profit is a superior indicator of future monetary streams (Al-Attar et al, 2008; Barth et al., 2001).

Therefore, in addition to considering the amount of profit, its quality must also be considered. When profits are not of sufficient quality, beneficiaries of the financial statements, including investors and creditors, will be confused about the expectations and estimates of future cash flows, which are the basis for an investor's valuation. By increasing uncertainty about the future events of an economic unit, or in other words by increasing the risk of investing in the company, investors (creditors and shareholders alike) are less willing to invest in companies. The continuation of this situation in the long run will create financial problems for companies. On the other hand, the persistence of these problems can lead to excessive risk for the company, as well as make it difficult for companies to face the problem of financing and repaying their major and secondary debts, which in itself means that the company is on its way to bankruptcy (Dastgir et al, 2012).

When measuring the financial robustness of business units, profit quality emerges as a prime indicator. This is of particular interest to users of financial statements, including investors and creditors (Salehi & Bazrgar, 2015). The quality of earnings also affects the predictability of financial failure of companies, which means that it affects variables that provide predictions of financial failure. In other words, earnings quality models can be used as modified variables in the financial failure prediction model. Based on research in this area, it is clear there is a link between earnings quality and crucial financial indicators in stock exchanges. The basis of this understanding was established by Francis et al. in their 2006 work. Dechow et al. supported these findings in their subsequent study in 2010. However, the impact of earnings quality is less well-known than utilizing accounting data for forecasting. Therefore, the current study seeks to assess the impact of earnings quality as a modified variable in predicting financial failure. In other words, the current study seeks to answer questions about whether the quality of earnings can increase the predictability of financial failure.

Research Importance

When it comes to setting rules for accounting practices, a core purpose is to provide reasonable assurance to users of financial statements so that they can make correct and sound decisions. On the other hand, decision-making processes for users of financial statements are primarily guided by profit figures, a vital element of any accounting information setup. Therefore, financial analysts assess both the quality of earnings as well as their quantity.

Thus, timely recognition of financial failure and bankruptcy of an entity plays an important role in making economic decisions for users of financial statements. Companies can make optimal use of their resources, and given the importance of quality financial reporting in recent decades, financial failure and bankruptcy are expected to hinder companies from

providing high-quality financial reports. As a result, for firms on the Iraq Stock Exchange, this study seeks to determine whether earnings quality exhibits a strong relationship in statistical terms with financial failure predictions. The significance of the current study stems from exploring how profit reliability relates to bankruptcy predictions and identifying the influencing factors and criteria specialized in predicting financial failure.

Research Objectives

This research explores profit quality and its potential to predict fiscal collapse for businesses on the Iraq Stock Exchange. The underlying premise holds that enhanced earnings quality could boost the predictability of financial failure.

By achieving these objectives, the following can be accomplished:

- Assisting the setters of accounting standards to evaluate the effectiveness of the standards presented in the field of accounting profit reports.
- Providing creditors with recommendations to make the best decisions optimally according to the fundamental aspects that impact the disclosure of accounting profits.

Study Hypotheses

1- The accuracy of the prediction of return on assets in the Altman model (1968) of financial bankruptcy after adding the quality of profits (quality of receivables) is greater than the accuracy of the prediction of return on assets in the Altman model (1968).

2- The accuracy of the prediction of return on assets in the Altman model (1968) of financial bankruptcy after adding the quality of profits (profit fluctuation) is greater than the accuracy of the prediction of return on assets in the Altman model (1968).

3- The accuracy of the prediction of return on assets and change in profits in the Holsen model (1980) of financial bankruptcy after adding the quality of profits (quality of receivables) is greater than the accuracy of the prediction of return on assets and change in profits in the Holsen model (1980).

4- The accuracy of the prediction of return on assets and change in profits in the Holsen model (1980) with financial bankruptcy after adding the quality of profits (profit volatility) is greater than the accuracy of the prediction of return on assets and change in profits in the Holsen model (1980).

The Methodology of The Study

Recall that the objective is to determine the models of predicting financial failure, as well as to explore profit integrity as an essential intermediary when forecasting fiscal collapse among businesses trading on the Iraq Stock Exchange. To determine existing relationships between variables, we applied descriptive and deductive techniques, complemented by logistic regression analysis of the firms' financial reports published on the Iraq Securities Market website. Data was collected, organized and classified using Excel, and Eviews 13 statistics software was used to analyze and test hypotheses. In theory, the researcher relied on external and internal scientific books and articles published in prestigious scientific journals.

Research Sample

The study sample comprises Iraqi joint-stock firms across various sectors (industrial, service, agricultural, and lodging) traded on the Iraq Securities Exchange between 2014 and 2020, given they fulfill certain requirements, which run as follows:

1. Companies must be market-listed from 2009 to 2021 because profit quality models require data from (5) previous years in addition to one future year.
2. The fiscal year of the sample companies shall end on 31/12.
3- The company should not be within the banking, financial or insurance sector.
4. It should not have interruptions during the years of study.
5. Access to the company's financial statements.
6- The company should not have been listed during the study period.

The conditions outlined above yielded a sample of 35 firms trading on the Iraq Stock Exchange between 2009 and 2020. The number of views reached 385, where information was collected from the official website of the market as well as from the Securities Commission, which is responsible for publishing the fiscal data of the firms under discussion. Following Shumway (2001), Hillegeist et al. (2004), Campbell et al. (2008), Ke, Ruihao (2012), and Hussein et al. (2018), the current study adopts a logistic regression model. Shumway (2001) shows that dynamic logistic models extract superior data utilization over static alternatives, resulting in reliable estimations. The model used for the current study runs as follows:

$$Pr_{it}\ (Distress_{it+1} = 1) = \{1 + exp\ (-1.(\alpha + \beta \cdot \mathrm{X_{it}}))\}^{-1}$$

$\boldsymbol{Distress_{it+1}}$**:**Financial failure index: takes (1) if She was Company Loser, Otherwise, it takes (0).

:$\mathbf{X_{it}}$Independent variables used in the model.

Models for testing study hypotheses

1- Model for testing the first and second hypotheses before adding earnings quality models

$$Pr_{it}\ (Distress_{it+1} = 1) = \{1 + exp\ (-1.(\alpha + \lambda_1.ROA_{it} + \lambda_2.WCTA_{it} + \lambda_3.RETA_{it} + \lambda_4.VETL_{it} + \lambda_5.STA_{it} + \varepsilon_{it}))\}^{-1}$$

2- Model for testing the first and second hypotheses after adding earnings quality models

$$Pr_{it}\ (Distress_{it+1} = 1) = \{1 + exp\ (-1.(\alpha + \lambda_1.ROA_{it} + \lambda_2\ .EQ_{it}\ .ROA_{it}\ + \gamma_1\ .EQ_{it} + \gamma_2.WCTA_{it} + \gamma_3.RETA_{it} + \gamma_4.VETL_{it} + \gamma_5.STA_{it} + \varepsilon_{it}))\}^{-1}$$

where:

$Distress_{it+1}$: Financial failure index (takes (1) if the company fails, and conversely takes (0)). ROA= represents earnings prior to interest and tax deductions are measured against total assets. = Earnings quality metrics comprise: WC/TA (discrepancy between current assets and

liabilities, normalized by total assets), RE/TA (historical earnings retained, expressed as a fraction of total assets), Ve/TL (ratio of equity market value relative to recorded liabilities), and S/TA (sales volume relative to asset base).

Model for testing the third and fourth hypothesesBefore adding earnings quality models

$$Pr_{it}\ (Distress_{it+1} = 1) = \{1 + exp\ (-1.(\alpha + \lambda_1.ROA_{it} + \lambda_2.CHIN_{it} + \lambda_3.Size + \lambda_4.TLTA_{it} + \lambda_5.WCTA_{it} + \lambda_6.CLCA_{it} + \lambda_7.FUTL_{it} + \lambda_8.INTWO_{it} + \lambda_9.OENEG_{it} + \varepsilon_{it}))\}^{-1}$$

1- Model for testing the third and fourth hypotheses After adding earnings quality models

$$Pr_{it}\ (Distress_{it+1} = 1) = \{1 + exp\ (-1.(\alpha + \lambda_1.ROA_{it} + \lambda_2\ .EQ_{it}\ .ROA_{it} + \lambda_3 CHIN_{it} + \lambda_4.EQ_{it}\ .CHIN_{it} + \gamma_1\ .EQ_{it} + \gamma_2.Size + \gamma_3.TLTA_{it} + \gamma_4.WCTA_{it} + \gamma_5.CLCA_{it} + \gamma_6.FUTL_{it} + \gamma_7.INTWO_{it} + \gamma_8.OENEG_{it} + \varepsilon_{it}))\}^{-1}$$

where:

$Distress_{it+1}$: Financial failure index (takes (1) if the company fails, and conversely takes (0)). ROA= Net income to total assets. = CHIN captures the variations in net income. = Quality of profits. Size is determined by the logarithm of assets adjusted for GNP price index. Total liabilities divided by total assets yield TL/TA. WC/TA is the ratio of net working capital to total assets. Short-term liabilities to current assets produce CL/CA. Net operating cash flow relative to total liabilities gives FU/TL. INTWO becomes 1 with two consecutive negative net income years, 0 otherwise. OENEG is 1 if liabilities surpass assets, 0 if not.

Study variables

The dependent variable addressed in the current study is financial failure. As such, the amended 1997 Iraqi Companies Law No. (21) provided the legal framework, specifically Article (76) as a criterion for classifying companies into successful companies and failed companies, through the use of a dichotomous predictor that takes (1) if the company is a failure, and takes (0) otherwise.

Independent variable: The independent variable in this study, the return on assets variable in the Altman model (1968) and the return on assets and change in profits in the Holsen model (1980) as independent variables were added to the original models, as in the following models:

1- Altman Model (1968):

This is a pioneering model for predicting financial failure where it utilizes 5 ratios to detect its occurrence:

P(Y=1|X) = F(β0 + β1X1 + β2X2 + β3X3 + β4X4 + β5X5)

Where:

Y is the distress indicator
X1 to X5 are the financial ratios.

2- Ohlson's model (1980):
Ohlson developed Altman's model in which 9 metrics or ratios are used to predict the occurrence of financial failure. The model used in this study is as follows:

Pr(Default = 1) = G(α + β1LEV + β2PROF + β3LIQ + β4SIZE + β5GROWTH + β6AGE + β7IND + β8MACRO)

Where:
LEV = Total Debt / Total Assets
PROF = EBITDA / Total Assets
LIQ = Current Assets / Current Liabilities
SIZE = Natural logarithm of Total Assets
GROWTH = (Salest - Salest-1) / Salest-1
AGE = Number of years since firm's incorporation
IND = Industry dummy variable
MACRO = GDP growth rate

G(...) is the logistic cumulative distribution function
α is the intercept term
β1 to β8 are the coefficients for each variable.

Modified variable (median): In this study the quality of profits, the researcher relied in measuring the quality of profits on two models (quality of receivables and volatility of profits) and they were as follows:
1- The first modified variable (median) in this study The quality of receivables The researcher relied on the quality of receivables as a measure of the quality of profits by taking advantage of the model of Djo and Degu (2002) modified by Francis et al. (2005), as shown in the following model:

$$\frac{\mathrm{TCC_{it}}}{\mathrm{Asset_{it-1}}} = \phi_0 + \phi_1.\frac{\mathrm{CFO_{it-1}}}{\mathrm{Asset_{it-1}}} + \phi_2.\frac{\mathrm{CFO_{it}}}{\mathrm{Asset_{it-1}}} + \phi_3.\frac{\mathrm{CFO_{it+1}}}{\mathrm{Asset_{it-1}}} + \phi_4.\Delta\mathrm{Rev_{it}} + \phi_5.\mathrm{PPE_{it}} + \varepsilon_{it}$$

$ACC_{i.t}$ total accruals represent the discrepancy between operating income and cash earnings.
$Asset_{i.t-1}$Total assets at the beginning of the year.
$CF0_{i.t}$: Operating cash flow.
$\Delta Rev_{i.t}$: Change in revenues (current year revenues–previous year's revenues).
$PPE_{i.t}$: Assets at book value.

$\varepsilon_{i.t}$*Estimation error (residuals)* The standard deviation of the remainder between year (t) and year t-4 represents the quality of the optional entitlements, greater standard deviation correlates with diminished value of optional benefits.

2- The second modified variable (median) in this study Profit volatility The researcher relied on profit volatility as a measure of the profit quality , which gauges earnings persistent and consistent patterns over time., continuous and stable profits are required from the point of view of investors because of their continuity (Francis et al., 2008), as shown in the following model*:*

$$Vol(\Delta E)_{t.i} = \sigma \left(\frac{NIBE_{t.i} - \text{NIBE}_{t.i-1}}{\text{Asset}_{t.i-1}}\right)$$

$Vol(\Delta E)_{t.i}$*: Profits fluctuations.*

$NIBE_{t.i}$*: Net profit before transfer and other income.*

$Asset_{i.t}$*Total assets.*

Profit fluctuations are an inverse measure of the quality of profits, and therefore their decline gives an indication of the high quality of profits.

Altman Model Test Results

The Altman financial distress test results for the studied companies are shown in Table (1).

Table (1). Altman model test results before and after adding profit quality models

Altman model after adding earnings quality models		Altman model	Independent variables
Vol	AQ		
-6.540	**-7.234**	**-9.290**	ROA
-1.781	**-1.170**	**-2.545***	T-test
-9.631	**3.822**		ROA*EQ
-0.898	**0.498**		T-test
-0.793	**-0.334**		EQ
-0.989	**-0.457**		T-test
491.654	**488.512**	**432.309**	LR-statistic
0.000	**0.000**	**0.000**	LR-Prob
0.909	**0.911**	**0.876**	R2

*** Significant in statistical terms at the threshold (p < 0.05)**
**** Significant in statistical terms at the threshold (p < 0.01)**
***** Significant in statistical terms at the threshold (p < 0.001)**

Statistical findings in the table above indicate model significance across the board, as (LR-statistic) test p-values fall under the 0.05 threshold where it reached (0.000). This can be denotes that the models are suitable for testing, and their findings can be relied upon. This also indicates that the independent variables can predict financial failure, and it is found that the value of (R2) has risen after adding profit quality models as a modified variable for the Altman model, so the result of the first and second hypothesis of the study in the Iraqi economic environment is acceptable, This means that the quality of profits in Iraq's economic environment can increase the predictive power of the Altman model.

Ohlson Model Test Results

The results of the Ohlson model test for the sample companies, as shown in Table (2).

Table (2). Ohlson model test results before and after adding earnings quality models.

Ohlson model after adding earnings quality models		Ohlson model	Independent variables
Vol	AQ		
-12.985	-34.881	-21.901	ROA
-3.308**	-2.296*	-4.912***	T-test
-15.296	21.259		ROA*EQ
-1.755	1.431		T-test
0.955	4.890	1.197	CHIN
1.829	2.495*	3.203**	T-test
0.242	-4.287		CHIN*EQ
0.297	-2.165*		T-test
-1.056	0.553		EQ
-1.605	0.698		T-test
521.441	523.605	501.637	LR-statistic
0.000	0.000	0.000	LR-Prob
0.814	0.808	0.792	R2

*** Significant in statistical terms at the threshold ($p < 0.05$)**

**** Significant in statistical terms at the threshold ($p < 0.01$)**

***** Significant in statistical terms at the threshold ($p < 0.001$)**

The table shown above, detailing the statistical analysis results, clearly demonstrates that all models are significant, in view of the probability value (Prob) for the LR-statistic test is less than the 0.05 significance level across all models, where it reached (0.000). This demonstrates the validity and reliability of the test and results respectively. It also indicates that the independent variables can predict financial failure, and it turns out that the value of (R2) has risen after adding profit quality models as a modified variable for the Altman model. Thus, the findings pertaining to the 3rd and 4th hypotheses of the study, conducted within the Iraqi economic environment, are acceptable. This means that the predictive capability of the Ohlson model can be increased by the quality of profits Iraq's economic environment.

Conclusions

The results emerged from the current research after adding profit quality models as a modified variable to the Altman and Ohlson models for predicting financial failure indicate an improvement in the models' ability of predicting financial failure. According to the results of the study, it is clear that the predictive power of the Altman model is higher than the Ohlson model, we conclude that accounting information is stronger in terms of predicting financial failure than market information. Also, the ability of accounting information and profit quality models can affect the prediction of financial failure, and this confirms that the predictive ability of financial failure models can significantly affect the quality of financial information. These findings of the study dovetail with Ruihao's (2012), Li et al, 2013, Persakis & Iatridis, 2015, Hussein et al, 2018, while contradicting the results of Martin and

Peat, 2009, which indicated that market information is more capable than accounting information to predict financial failure.

Recommendations

According to the above-mentioned findings pertaining to the hypotheses addressed in the current research, the following practical recommendations are given:

- The quality of earnings plays a moderate role in predicting financial failure. Consequently, we recommend that investors to consider earnings quality when evaluating company shares. This is because ignoring profit quality may lead to a change in the results of the valuation.
- We recommend that beneficiaries of financial statements consider earnings quality aspects when analyzing profits.

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