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The Impact of Applying Egyptian Regulations on the Lessor Business Health (Panel Data Approach)

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Abstract

The aim of this study is to indicate the non-financial institutions financial health before and after the application of the Egyptian Financial Leasing and Factoring Act. Lessor firms applied the new Regulations for leasing on the year 2018. The study uses numerical data for 5 years during 2016-2020 from the financial reports of 10 lessors listed in the Egyptian Financial Regulatory Authority FRA. The sample of the study was equivalent to 43 firm year observations. The selected firms operate in cash, have annual reports that date from 1/1 to 31/12, have not been disqualified at any time during the study period, have complete data, and currency recorded in Egyptian pound. The test tool used to forecast financial health was the adjusted Altman Z-Score model (1995). In addition, the study applied the simple regression model and five step panel analyses. The dependent variable was the firm health represented by the sum of Z-Score. The independent variable was the Financial Leasing and Factoring Act represented by sales, financial liabilities, EBIT/operating profit or loss and financial leased fixed assets. The results indicate a strong significant impact of applying the

Financial Leasing and Factoring Act on the lessor business health. The results of this study might increase the quality of predictability of lessor financial health. The length of the study period makes it possible to track progress of lessor firms to be able to predict their future business health. This is a modest contribution to the literature relating to lessors in Egypt.

Keywords: Financial Leasing Factoring Act, Altman Z-Score 1995, Lessor, Egypt

1. Introduction

1.1 Introducing the Problem

A country's economy and people may experience substantial harm and massive costs from financial distress that ultimately leads to the bankruptcy. There is literature that indicates countries characterized with diversified financial systems where developed non-bank financial institutions are more resilient to economic shocks. However, financial sectors in most developing countries are underdeveloped. The banking systems control the financial sectors in developing countries. Never the less, the banking systems play a weak role in financial intermediation. This may be due to lenient contract enforcement, poor accounting standards, and inadequate credit information system (Levine, et al., 1999; Demirguc-kunt & Levine, 2000; Deirguc-kunt & Makasimovic 1998; Greenspan 1999). In the Middle East and North Africa MENA region, banks are often reluctant to extend loans to newly established and small-scale enterprises. In addition, nonbank financial institutions are underdeveloped and their role in financial intermediation is rather weak in the region. Financial leasing is most convenient for small-scale firms without a long credit history and lack collateral. The lessee has the right to buy the asset at the end of the lease contract for a predetermined price. The leasing industry started in the 1950s in the USA. It rapidly extended to Europe and Japan in the 1960s then all throughout the developing countries ever since the mid-1970s. This rapid spread of this industry has not received enough attention by policymakers in developing countries. Facilitating access to finance through the financial leasing industry could be economically rewarding for MENA. However, no significant progress has taken place in this regard despite efforts made. There are confrontations and obstacles that the financial leasing industry needs to deal with that only hinder their benefits.

According to previous literature, in terms of the MENA region Egypt has a rapidly growing economy compared with other emerging economies (Dahawy & Samaha, 2010; Elsayed & Hoque, 2010) and deserves more attention. This was the motive of this study. When reverting to the Hofstede study, results indicate that Egyptians tend to avoid uncertainty, are more willing to accept power distance, and are collectivistic. These are all characteristics that drive accounting values to be uniform, secretive, and conservative. Thus, related literature describes the Egyptian accounting system as conservative and tax oriented. This means that business firms immediately realize losses and expenses in the financial statements. Business firms make relative provisions. Business firms incorporate profits into the financial statements when they occur.

The Egyptian Financial Regulatory Authority FRA issued the Financial Leasing and Factoring Act regulating both financial leasing and factoring activities, promulgating financial leasing

Law No. 95 of the year 1995, which aims at steering economic volume and increasing production of small and medium enterprises. In accordance with the new Financial Leasing and Factoring Act, Financial Leasing is a financial contract applicable on assets or use of rights established between the lessor and the lessee. This law states that Financial Leasing is a financing activity where the lessor has the right to possess and use a leased asset to a lessee for a specified period in return for lease payments in accordance with the provisions of a contract. The lessor and the lessee write The Financial Lease Contract stating that the lessee owns the leased asset not the lessor. The intension is to use the leased asset in economic activities, service activities or production activities for a certain period for a specified rent. The Financial Leasing and Factoring Act state that the lessor is the entity that has the license to engage in financial leasing activity. The lessee is the natural or legal person that has the right to possess and use the leased asset in accordance to the financial lease contract.

Financial Leasing and Factoring contracts are automatically terminated without recourse to any judicial proceedings in certain cases, among which are the lessee's failure to pay the agreed upon lease, bankruptcy or dissolution or death of the lessee. The new Regulations cancel out the contract when leased asset is in total loss, without prejudice to any of the parties' contractual obligations. The new Regulations for leasing aims at accelerating the availability of cash flow of small and medium-size businesses while avoiding the need for expensive, lengthy banking facilities with accompanying guarantees, whether personal, commercial or corporate. The law required companies operating in Financial Leasing and Factoring to comply with its provisions by mid-February 2019, while valid contracts continued to be subject to previous tax treatment until expiration date. After that, the new Regulations were mandatory. Only joint stock companies with paid-in capital of no less than EGP 10 million, or the equivalent may carry out the Financial Leasing or Factoring activities in foreign currency, after obtaining a license from FRA. The new law regulates financial leasing and factoring contracts and distinguishes between them. Furthermore, the Egyptian Financial Leasing and Factoring Act regulate the related parties' obligations resulting from the contract. Accordingly, the lessor should be responsible for maintenance, taxes, and insurance, while the lessee pays the lease on a timely basis and may only use the leased asset as provided in the agreement. The Egyptian Financial Leasing and Factoring Act identify the new movable securities registry law with respect to the use of movable assets as collateral for obtaining finance. The number of financially leased commercial assets grew from 2,329 in 2014 to 2,362 in 2018 and 2,621 2020. Their cumulative value increased more than six-fold from EGP 7 billion in 2014 to EGP 41.6 billion in 2018 and EGP 58.6 billion in 2020. This massive increase directly relates to the types of assets that the small and medium enterprises SMEs are more inclined to lease. According to the FRA, property and real estate account for the bulk of leased assets account for 85% of the market's total value as of the third quarter 2020.

The new regulations lay down the rules and procedures for licensing financial leasing companies that own assets and provide financial leases. This means that they lease them to companies for their use and control in return for a share in any economic risk. Overall, this law is part of a grand scheme of laws contributing to the development and growth of the business environment. The Egyptian Financial Leasing and Factoring Act funds small businesses, as it

regulates their provision of assets necessary for the operation that is otherwise not obtainable from traditional banks. This encourages both foreign and internal investment and creating new employment opportunities.

The understanding of the vulnerability of firms has become a matter of increasing concern to policymakers in recent years (IMF, 2002). Since development in 1968, Altman's Z-score has been widely used to evaluate the risk of financial failure by companies in various countries, industries, and time-periods. Predicting financial distress using Altman's Z-score is one of the popular methods used as indicated by (Toly et. al., 2020; Ranjbar & Amanollahi, 2018; Abdul-kareem, 2015; Cho et al., 2012; Wu, 2010). To accommodate different industries and for wider acceptance of users the Z-score equations were subject to adjustments. In the early stages of the bankruptcy, the company management manipulates accounting profit to provide good news to the capital market, thus stopping corporate failure(Campbell et al., 2015; Burgstahler & Eames, 2006; Chan et al., 2001).

Financial distress is of extreme concern to those that are influenced the most by this problem (Howe & Houston, 2015). Financial distress is the result of bad management choices of financing policies and their inability of implementing the company's plan (Platt & Platt, 2006). However, bankruptcy is the legal process by which the debts of firms, individuals, and occasionally governments in financial distress are resolved out of the court (White, 2011). Thus, it can be inferred that, if the financial distress of the company is not immediately detected, it will instantly go bankrupt and will be unable to pay its obligations.

This study strives to confirm the significance of using Altman Z-score 1995 model to maintain the availability of accurate information related to lessor business health in Egypt. Thus, maintaining quality predictions for company financial distress and bankruptcy. Accordingly, to protect investors from making harmful business decisions due to inaccurate predictions. This study seeks to identify the outcome of using Altman Z-score 1995 model for predicting financial distress of the lessor firms in Egypt.

1.2 Literature Review

The pillars of this study are the theory of economies of scale, pecking order theory, trade order theory, and agency theory. The Positive Accounting Theory proposes that a key purpose of financial reporting is to force management to operate for the benefit of the shareholders (Watts & Zimmerman, 1978). This study confirms firm size and firm growth opportunities significant determinants of leasing. (Padron et al. 2005) support the economies of scale theory that assumes there is a link between the firm's size and profitability. This theory describes the significance of big firms over small firms.

The static trade-off theory derived by Modigliani & Miller (1958) supposes that there are most favorable capital structures by performing a trade-off between the benefits and costs of equity and debt. However, other studies have shifted to the pecking order after the trade-off theory (Zeitun et al. 2017, Karim *et al*. 2017). The trade-off approach involves a fixed technique to financing decisions according to a target capital structure, while pecking order theory firms choose capitals consistent with the subsequent order: internal finance, debt, and

equity. Weber & Yang (2020) confirm that firms may be inclined to finance themselves via debt when they have high market values.

Financial leases do not provide for maintenance, they are not cancelable, the business firm fully amortizes these financial leases, and they are normally for a period similar to that of the useful life of the asset. The lessee selects the specific item needed and then negotiates the price and delivery terms with the manufacturer. The lessee then arranges to have a leasing firm (lessor) buy the equipment from the manufacturer, and the lessee simultaneously executes a lease agreement with the lessor. The terms of a financial lease call for full amortization of the lessor's investment, plus a rate of return on the lease that is close to the percentage rate the lessee would have paid on a secured term loan. Under a secured loan arrangement, the lender would normally receive a series of equal payments just sufficient to amortize the loan and to provide a specified rate of return on the outstanding loan balance. Under a financial lease, the payments cover the full purchase price to the lessor plus a stated return on the investment. At the end of a financial lease, the lessee can own the leased asset instead of the lessor. The main goal of financial leasing management in terms of attracting loan capital is to minimize the flow of payments for servicing each leasing operation.

Pangaribuan et. al., (2022) aims to identify the potential bankruptcy of leasing companies listed on the Indonesia Stock Exchange (BEI). This study also aims to determine whether the analysis of financial ratios as measured by liquidity ratios, solvency, and profitability affects bankruptcy. This study uses a descriptive analysis method using secondary data. The study relied on data from the financial statements and other supporting documentation and literature study techniques. The sample study composed of leasing companies listed on the Indonesia Stock Exchange (IDX) during 2015 - 2019. Meanwhile, the data analysis methods used were the Altman Z-score method and Fixed Effect Model Analysis. The results found that the bankruptcy analysis from 2015 to 2019 shows that there are 2 leasing companies (15.38%) predicted to go bankrupt, 4 leasing companies (30.77%) predicted to enter the grey area, and 7 leasing companies (53.85%) predicted to be healthy. In addition, the results discover the liquidity ratio has a positive and significant effect on potential bankruptcy, solvency has a negative and significant effect on potential bankruptcy, and profitability does not have a significant effect on a potential bankruptcy.

Islam et. al., (2014) argue that leasing is one of the booming industrial sectors in Bangladesh. According to this study, leasing has gained popularity because it is a cheaper alternative source of fund, it is an alternative to investment, and for the possibility to cancel the lease options during changing macroeconomic factors. This study argues that the developed markets consider the lease as a provider of 100% financing with the notion that it displaces debt. This study perceives that leasing actually reduces the leverage needs of a firm.

Azim & Sharif (2020) aims to identify whether or not the Z score is usable in predicting financial distress at its early stages in the People's Leasing and Financial Services (PLFS) and the Bangladesh Industrial Finance Company (BIFC). The study sample consisted of 15 units. Using the data during 2011-2017 of PLFS and 2015-2017 of BIFC, this study applied the SPSS and the Altman Z"-score model to analyze the descriptive statistics of the financial

information and ratios to identify the level of financial distresses and attributes leading to distress. Finding shows that Altman Z"-score is able to predict the failure of the firm. The descriptive analysis shows that working capital, income before interest and tax, and retained earnings were negative. The study proposes these to be the reasons for distress. This study proves the usefulness of the Altman Z"-score in the early prediction of bankruptcy thus, the prevention of liquidation. The finding shows that most of the companies are in the distressed zone. Predicting financial distress is a useful tool to get early warning signals of a potential failing firm, which can help the stakeholders to take effective decisions to protect probable future losses.

Jaisheela (2015) aims at indicating whether or not leasing property have significant financial benefits. The study also examines the financial health of leasing companies, as well as, predicts their future financial soundness using Z-score analysis. The study evaluates the financial health of 27 Indian leasing companies. The study gathers data for the period of the 2008-2013. Results show fourteen leasing companies in the safe zone, six companies fell in the grey zone and seven companies were in the high risk of going bankrupt in the very near future. Findings also convey that all the companies evaluated were facing problems. In most of the cases, the sum of Z-score was negative. Thus, strong management decisions were required to revive business financial health.

Gritta et al., (2008) study tries to measure the current financial condition of the major U.S. air carriers to compare their financial strength during 1995-1999 when the carriers earned highest profits. The study uses the Altman Z”-score model. The period of the study was 1995-2008. Findings reveal the financial health of the major U.S. air carriers has worsened throughout the first decade of the 21st century due to the combination of decreasing equity values and increasing use of debt. The drop in interest rates can explain this from 2000 to 2005, which increases the attractiveness of debt as a source of capital.

Khan et al., (2022) examines the possibility of bankruptcy of selected telecom companies by applying Altman Z-Score 1968 model. This study suggests that the biggest issue for firms is their survival. Findings, infer that firm-specific variables lead to greater debt adjustment. Findings also reveal that top market leaders should focus on debt reduction and interest payments, as well as, implementing new strategies to solve the crisis and change financial policies. In addition, the study proves there is no statistically significant relationship between telecom company growth and debt.

Horváthová et al., (2021) aim to determine the financial health of a sample of 444 companies in the heat supply industry in Slovakia. The study sample was evaluated using a univariate logit model and a correlation matrix through the multivariate discriminant analysis (MDA) and feed-forward neural network (NN). The study compares the performance of the two models. Findings reveal that the NN was the suitable alternative in assessing financial health. Findings infer that the presence of high indebtedness was a predictor of financial distress for the Slovak heating industry.

Ali & Abbas, (2015) aims at presenting Altman models for predicting bankruptcy of industrial companies listed on the Iraq Stock Exchange. The study also aims at identifying the

probability of the selected companies to falling into bankruptcy, as well as, proposing the requirements necessary for helping companies to overcome the risk of bankruptcy. The study population consists 29 industrial companies listed on the Iraq Stock Exchange. The study applies Altman models for company bankruptcy prediction. These models were the Z-score model, Zeta model, and Z_3 modified model. Findings reveal a discrepancy between the results of the three models in predicting bankruptcy. Findings also show most companies fall within the grey area, indicating a weakness in performance and inability to make satisfactory profits for shareholders. In general, the three models used predicted that the companies are on the verge of bankruptcy.

Kumar & Anand (2013) investigate whether it is possible to rely on the Altman Z-score 1968 model and the Altman Z-score 1983 model to assess financial health and predict financial failure of a publicly traded service company Kingfisher Airlines Ltd (India). The case study took place during 2005 - 2012. The mean Z-score 1968 for the firm under investigation was 0.918 and the mean Z-score 1983 was 0.019 that was less than the cut off amount. According to these results, the models were able to predict financial distress and probable future bankruptcy of the firm.

Suresh & Nithyananda (2017) analyze the financial health of 10 manufacturing companies listed under the food industry in the Muscat Securities Market MSM Oman. This study uses Altman Z score. The study evaluates data from the published financial reports of these companies for a five-year period during 2012-2016. The results indicate that, out of the 10 companies, four companies were safe and face no danger of insolvency in the near future. The other six companies presented mixed records, with risk of insolvency for all or some of the years under review.

Rahmana et al., (2020) examines the financial soundness of 20 non-banking financial institutions NBFIs in Bangladesh using Altman Z score (1995). The study selects a sample based on information availability by considering A, B and Z categories. The study evaluates data during 2014-2018 from the annual reports of the selected companies over the study period. The findings show 95% of the 20 NBFIs were in the distress zone during the entire study period and only 5% were in the safe zone during 2017-2018.

Maina & Sakwa, (2017) aim to assess the financial distress for 30 firms listed on the Nairobi Stock Exchange NSE in Kenya. This study uses the Z-Score Multi-Discriminant Financial Analysis Model. The results indicated that out of the 30 companies analyzed, only five companies were in the safe zone indicating future financial health, while 16 companies were in the grey zone indicating mixed probability of continuity, and nine companies were in distress zone indicating future financial distress. Overall, the results indicated that the financial health of the sample studied needs improvement.

Toly et al., (2020) examine Indonesian publicly listed manufacturing companies for the possibility of financial distress. The study uses The Altman Z-Score model to forecast bankruptcy. This study also aims to explain how each ratio in the model affects the prediction of financial distress. The sample tested was 139 listed manufacturing companies during 2016-2018. The study applies the logistic regression test. Results indicate that 55 companies

experience financial distress in 2016 and 2017. In addition, 56 companies experience financial distress in 2018. Results also indicate all four ratios in Altman Z-Score model positively affect the determination of financial distress. However, the most significant were the ratio of retained earnings/total assets and the ratio of earnings before interest and tax / total assets.

The literature review includes studies from Indonesia, Bangladesh, India, America, Slovakia, Iraq, Oman, and Kenya business environments. This study focuses on the impact of the Altman Z-score models in predicting the near future financial health of the non-financial institutions represented by the leasing industry, airline industry, telecommunication industry, heating industry, manufacturing industry, and food industries. The study results are mixed. The modest review of literature made on the related topic presented above show no studies made in the Egyptian business environment. Literature on the related topic fails to address the significance of applying the Financial Leasing and Factoring Act in Egypt on the lessor business health. The length of the study period for this study makes it possible to track progress of lessor firms to be able to predict their future business health. This study strives to confirm the significance of using Altman Z-score 1995 model to maintain the availability of accurate information related to lessor business health in Egypt. Consequently, this version of Altman Z-score takes into consideration the nature of emerging business environments like Egypt. Thus, maintaining quality predictions for company financial distress and bankruptcy. Accordingly, to protect investors from making harmful business decisions due to inaccurate predictions. This study seeks to identify the outcome of using Altman Z-score 1995 model for predicting financial distress of the lessor firms in Egypt.

1.3 Hypothesis Development

Lack of studies on lessor firms adopting the Egyptian Financial Leasing and Factoring Act and the Altman Z-score 1995 model in developing countries is the catalyst of this study. Thus, the following hypothesis emerges:

H_1 The application of the Egyptian Financial Leasing and Factoring Act has a significant impact on the lessor business health.

H_0 The application of the Egyptian Financial Leasing and Factoring Act does not have a significant impact on the lessor business health.

2. Method

This study relies on The Altman Z-score 1995 model, simple regression model and 5 step panel analysis. The Altman Z-score is the output of a credit strength test that evaluates a publicly traded manufacturing company's likelihood of financial distress ultimately leading to bankruptcy. Many adjustments were made to the Original Altman Z-score model. In 1995, Altman modified the prediction model to be used in all types of business in emerging economies. Panel data combines both time series and cross- sectional techniques allowing for improvement in the econometric estimations.

The dependent variable is the sum of Altman Z-score represented by the sum of y1= net

working capital/total assets NWC/TA, y2 = retained earnings/total assets RE/TA, y3 = earnings before interest and tax/total assets EBIT/TA, y4 = book value of equity/total liabilities BVE/TL (book value of equity = total assets – total liabilities).

The independent variable is the Financial Leasing and Factoring Act represented by x1 = sales, x2 = financial liabilities [long term liabilities or total liabilities – current liabilities], x3 = EBIT/operating profit or loss, x4 = financial leased fixed assets.

The modified Altman Z-score 1995 model is: Z"= 6.56x1 + 3.26x2 + 6.72x3 + 1.05x4

2.1 Using Altman Z-score 1995 Model

This study uses the Altman Z-score (1995) model to examine the business health of Egyptian lessor firms.

Table 1. Sum of Z-score 1995 for five years 2016-2020

	2016	2017	2018	2019	2020
1	-1.67509 Distress	-1.12937 distress	-1.34194 distress	-0.63906 distress	0.900113 Distress
2	-0.92842 Distress	-0.61697 distress	-0.76846 distress	0.730731 distress	0.407075 Distress
3	2.963532 safe	3.744244 Safe	0.238045 distress	-0.08732 distress	0.282099 Distress
4	0.295912 Distress	0.53374 distress	0.387954 distress	2.305828 grey	2.681621 Safe
5	-0.68586 Distress	-0.98968 distress	-0.82269 distress	1.564482 grey	1.745976 Grey
6	-0.43536 Distress	-0.36813 distress	-0.73208 distress	0.731216 distress	0.487828 Distress
7	-0.92241 Distress	-0.77677 distress	-0.93 distress	0.372737 distress	0.545545 Distress
8	-0.84482 Distress	-0.6889 distress	-0.66526 distress	0.196874 distress	0.67388 Distress
9	-0.93069 Distress	-0.86039 Distress	-0.59224 distress	0.843242 distress	0.665352 Distress
10	0.006762 Distress	0.224301 Distress	0.768895 distress	0.25429 distress	0.6649 Distress

According to Table 1 above, the impact of the use of the new regulation for leasing in Egypt led to an increase in the sum of Z-score even though the firms remain in the same distress zone. However, according to the trend presented e.g. Table 1 above, it is highly probable that within the very near future the majority of these lessor firms will rise out of the distress zone to either the grey zone or the safe zone. This study applied the modified Altman Z-score 1995 model with the following equation:

$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$

Where:

X_1 =Net Working Capital/Total Assets (NWC/TA)

X_2=Retained Earnings/Total Assets (RE/TA)

X_3=Earnings Before Interest and Tax/Total Assets (EBIT/TA)

X_4 =Book Value of Equity/Total Liability (BVE/TL)

The sum Z-score calculation classifies the companies to the following criteria:

1. If the sum of the Z-score <1.1, it indicates that the business is most likely go through the financial distress and needs attention otherwise it will go bankrupt.

2. If the sum of the Z-score falls between 1.1 and 2.6, it indicates that the business is in the grey area. This business needs revaluation to identify the firms that are safe and the firms that will face probable financial distress.

3. If the sum of the Z-score is >2.6, it indicates that the business is most likely safe and will not be experiencing financial distress.

The Altman Z-score 1995 model used in this study evaluates the financial data taken from the balance sheet and income statement of 10 Egyptian lessor firms. The model can be used to determine the company's financial health, as well as, targeting the critical problematic factors that need management's quick attention otherwise the company may fall into bankruptcy.

Table 1 above shows the sum of Z-Score of 10 non-financial institutions listed in the Egyptian Financial Regulatory Authority FRA, for five years during 2016-2020. These results represent the sum of Z-score before and after the application of the Egyptian Financial Leasing and Factoring Act.

According to the results e.g. Table 1 above, lessor companies number 1,2,6,7,8,9,10 have sum of Z-score that falls within the distress zone. Even after the application of the Egyptian Financial Leasing and Factoring Act, the negative values become positive but the lessor firms remain in the distress zone. According to the overall trend in the changes of the sum of Z-score, e.g. Table 1 above, it is probable in the near future that these firms might reach the safe zone.

However, after applying the Egyptian Financial Leasing and Factoring Act, the sum of Z-score for lessor firm 3 falls within the distress zone. Before applying the new lease regulation, the

sum of Z-score for lessor firm 3 was in the safe zone.

Interestingly, the sum of Z-score for lessor firm 4 kept increasing after the application of the new regulations for leasing until it escaped from the distress zone and reached the grey zone all the way up to the safe zone. The sum of Z-score for lessor firm 5 kept increasing after the application of the new regulations for leasing until it got out of the distressed zone and entered the grey zone.

2.2 Before and After Applying the Egyptian Financial Leasing and Factoring Act

The study hypothesis states: The application of the Egyptian Financial Leasing and Factoring Act has a significant impact on the lessor business health.

To test this hypothesis, the study applied the simple regression analysis. In this analysis:

- the dependent variable (Y) is the lessor business health represented by the sum of the Z-score.
- the independent variable (X) is the application of the Egyptian Financial Leasing and Factoring Act represented by a dummy variable taking a value of 0 in pre-application period and 1 in post-application period.

Results of the analysis are shown in the following e.g. Table 2.

Table 2. Simple regression model for testing the research hypothesis

Variables	Coefficient (B)	T-Test	
		T	P-value
Constant	-0.285	-1.531	0.132
X	1.051	3.574	0.001
F	12.772		
P-value	0.001		
R	0.458		
R^2	0.210		

X: application of the Egyptian Financial Leasing and Factoring Act

The results e.g. Table 2 above indicate that the overall regression model is significant (F=12.772, P-value < 0.05). The value of the coefficient of determination (R^2) is 0.210. This infers that the independent variable (application of the Egyptian Financial Leasing and Factoring Act) explains 21% of the variance in the dependent variable (lessor business health). The value of the correlation coefficient (R) between the independent and the dependent variables is 0.458. This indicates that there is a moderate, positive correlation. The result of t-test showed that there is a statistically significant relationship (P-value < 0.05) between the independent variable for the application of the Egyptian Financial Leasing and

Factoring Act and the dependent variable for the lessor business health. The sign of the estimated regression coefficient indicates that the two variables are positively related. Accordingly, results support the study hypothesis.

The following e.g. Table 3 shows some descriptive statistics (means and standard deviations) for the lessor business health, represented by the sum of the Altman Z-score, before and after the application of the Egyptian Financial Leasing and Factoring Act.

Table 3. Descriptive Statistics for Sum of the Altman Z-score

Variable	Before the law		After the law	
	Mean	S.D.	Mean	S.D.
Sum of o the Altman Z-Score	-0.28	1.14	0.76	0.78

It is clear e.g. Table 3 above that in the period preceding the application of the Egyptian Financial Leasing and Factoring Act, the mean value of the sum of the Altman Z-score was -0.28 with a standard deviation of 1.14. After the application, the mean value increased to 0.76 with a standard deviation of 0.78. Results of the evaluation of 10 lessor firms using Altman Z-score 1995 model indicate there is an increase in the sum of Z-score. The t-test evaluation of the same 10 lessor firms before and after adopting the new Egyptian regulation for lessor firms indicate a strong positive statistically significant relationship between the application of the Egyptian Financial Leasing and Factoring Act and the lessor business health. The mean of the descriptive analysis confirms the strong positive relationship as well.

2.3 Altman Z-score 1995 Model and Factors Representing New Egyptian Regulation for Lessors

The study compares three models using two tests:

F-test: to distinguish between the pooled model and the fixed effects model. The result of this check is significant ($F = 2.795295$, $p < 0.05$), inferring that the fixed effects model is preferred.

Hausman test: to distinguish between the random effect model and fixed affects model. The result of this check is non-significant ($\chi^2 = 1.734146$, $p > 0.05$), indicating the random effects model is better.

Table 4. Dependent Variable Y

Independent variables	Pooled model		Fixed effects model		Random effects model	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	0.401520	0.1207	0.040655	0.9341	0.261528	0.5023
X1	-0.000795	0.3348	-0.000684	0.5865	-0.000990	0.2804
X2	0.000430	0.1717	0.000808	0.0323	0.000624	0.0444

X3	-0.209905	0.0203	-0.176670	0.0470	-0.190320	0.0255
X4	-0.000224	0.1800	-0.000259	0.1306	-0.000233	0.1355
F	3.422197		3.393277		3.884552	
P-value	0.016475		0.002246		0.008981	
R^2	0.245809		0.572054		0.270050	

F-test & Hausman test	F-test			
	F	P-value		
	2.795295	0.0149		
		Hausman test		
		χ^2	P-value	
		1.734146	0.7845	

Based on the previous results e.g. Table 4 above, the appropriate model is the random effects model. The results of this model are as follows:

The overall regression model is significant ($F = 3.884552$, $p < 0.05$), and the coefficient of determination (R^2) is 0.270050. This infers the independent variables (x_1, x_2, x_3, and x_4) explain 27% of the variance in the dependent variable (y). According to the results in table 4 above, x_2 (0.0444) and x_3 (0.0255) have $p < 0.05$ and assumes significance on y. However, x_1 (0.2804) and x_4 (0.1355) have $p > 0.05$ that indicates an insignificant effect on y.

The coefficient of x_2 has a direct effect and is equal to 0.000624. So, for every increase in the x_2 by 1 EGP y increases, overall, by 0.000624 supposing the x_1, x_3, and x_4 are fixed. The coefficient of x_3 has an indirect effect and is equal to -0.190320. So, for every increase in the x_3 by 1 EGP y decreases, overall, by 0.190320 supposing the x_1, x_2, and x_4 are fixed.

3. Results

Findings of the Altman Z-score 1995 model, the statistical analysis of the impact of before and after the use of the Egyptian financial leasing and factoring act representing the new Egyptian regulation for lessor firms, and the panel analysis indicate a strong significant impact of applying the Egyptian financial leasing and factoring act on the lessor business health. In specific the x_2 = financial liabilities and x_3 = EBIT/operating profit or loss have the most impact.

4. Discussion

This study is a modest contribution to the current literature for a couple of reasons. First, it tracks 10 lessor firms listed in the Egyptian FRA for five years 2016-2020 that is considered adequate time to identify change. Second, this study focuses on lessors that apply Egyptian

Financial Leasing and Factoring Act. According to the evaluation of the financial statements evaluated in this study, the key observation was the noticeable change in numbers throughout the study period 2016-2020. The sample of the study was equivalent to 43 firm year observations. By using the results concluded from this study, managers will be able to make better decisions regarding their financing and better strategies to improve firm performance. The test tool used to forecast financial health was the adjusted Altman Z-score 1995 model. The dependent variable was the firm health represented by the sum of Z-score. The independent variable was the Financial Leasing and Factoring Act represented by sales, financial liabilities, EBIT/operating profit or loss, and financial leased fixed assets. The study applies the Altman Z-score 1995 model, simple regression model and 5 step panel analyses. The results indicate a strong significant impact of applying the Financial Leasing and Factoring Act on the lessor business health. Findings of the Altman Z-score 1995 model, the statistical analysis of the impact of before and after the use of the Egyptian Financial Leasing and Factoring Act, and the panel analysis indicate a strong significant impact of applying the Egyptian financial leasing and factoring act on the lessor business health. In specific the x_2 = financial liabilities and x_3 = EBIT/operating profit or loss have the most impact. Expectations are the results of this study might increase the quality of predictability of lessor financial health.

The major limitations to this study were that the available data provided by the Egyptian Financial Regulatory Authority FRA was limited to only 10 nonfinancial institutions lessors and without their names. Researchers can make more studies for more lessor firms for a more accurate comparison before and after the application of the Egyptian Financial Leasing and Factoring Act. In addition, the future studies should include the names for the lessors evaluated. These limitations discussed above influence the generalization of the results. In addition, related future studies might include a larger sample size, data from financial institutions, and lessee institutions instead of the lessor.

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No potential conflict of interest was reported by the authors.

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