Predicting the Financial Distress of Non-Banking Companies Listed on the Palestine Exchange (PEX)

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Abstract

The Palestine economy is prone to challenges arising from turmoil. The nature of its socio-political climate makes it important for investors to critically review the going-concern status of the companies they invest in. Therefore the purpose of this study was to determine the likelihood of non-banking companies on the PEX of going into bankruptcy. The research used data from the financial report of 41 non-banking companies on the PEX grouped in categories of Industry (12), Insurance (7), Investment (10) and Services (12). The reports were for the year ended 2014. Altman's Z-Score model was used to classify the companies in the various levels of financial position – safe, grey and distress. The study showed that a total of 52% of the total non-banking companies were in financial distress, 24% were in the grey zone and 24% in the safe zone. A sector-by-sector analysis showed that insurance companies were the most likely to file for bankruptcy, then services, investment and industry in that order.

Keywords: Financial Distress, Altman Z-Score, Bankruptcy Prediction, Palestine

INTRODUCTION

Financial ratios have served as the framework for predicting and detecting the operational and financial frailties and prowess of companies, both in the short term and long term. The keen interest in the creditworthiness and long-term survival of businesses has inspired many studies to provide results to boost investor confidence and make directors amenable. The works of Beaver (1966) and Altman (1968), spearheaded ratio analysis and bankruptcy predictions, with that of Deakin (1972) disserving an honourable mention. Beaver (1966), asserted that a number of known indicators could clearly distinguish between coordinated samples of failed and successful companies, five years before any failure. Deakin (1972) tweaked Beaver's findings with a series of discriminant models for his studies. Altman (1968), developed a model which employs financial ratios as variables for predicting bankruptcy, through multiple discriminant analysis. His method has stood the test of time as it is continually employed by contemporary researchers in the field of bankruptcy prediction.

Some researchers like Hillegeist, Keating, Cram, & Lundstedt (2004), have questioned the efficiency of bankrupcy prediction models whose variables are derived from financial accounting data. This emanates from the established fact that financial reports are a measurement of past performances, subduing its ability to correctly predict how a company will perform in the future. The going-concern principle, the underlying concept of representing and formulating financial statements, weakens accounting data even further, as it projects the company to be in existence for the foreseeable future, eliminating any consideration for the possibility of bankruptcy. This automatically confines (by design) the ability of the variables needed to accurately predict bankruptcy. Also, the understatement of the value of tangible and intangible fixed assets (compared to their market values) caused by the traditional principle of conservation overstates accounting variables, limiting predictability. Another identified weakness is the absence of asset volatility in bankruptcy prediction models, icluding the widely used Altman Z-score. This eliminates the possibility that a company's assets will diminish to a level which will prohibit the company from fulfilling its debts obligations. However, the stock market (like the Palestine Exchange) is a much more credible source for information about a company, as it makes available information from other sources in addition to financial statements needed for predicting bankruptcy.

The Palestinian economy was struggling with falling income per capita as at 2013, but the turmoil in Gaza threatened further deteriorations. Analysts, including the World Bank, predicted that the economy was to contract by the end of 2014. Fingers were pointed at the murky political environment and restrictions on movement. The World Bank Country Director for West Bank and Gaza, Steen Lau Jorgensen, lamented on saying *"in the labour force, one out of six Palestinians in the West Bank and nearly every second person in Gaza were unemployed even before the recent conflict. This is an unsustainable situation. Without immediate action by the Palestinian Authority, donors and the Government of Israel to re-vitalize the economy and improve the business climate, a return to violence as we have seen in recent years will remain a clear and present danger."* (Koussa, 2014)

Between 2007 and 2011, the Palestinian economy recorded an average of 8% annual growth, but that significantly dropped to 1.9% in 2013. The first quarter of 2014 was even worse, as growth rate went into the negatives. The restrictions on movement of commodities and people continually worsened the poverty situation, particularly in Gaza (where poverty rate is twice as that in the West Bank), crippling businesses and subduing

economic activities. The expectations on the private sector to salvage the unemployment situation is high, but in reality, the restrictions are such that, 11% of formal firms have more than 20 workers compared to 35% in comparable lower-middle income countries. The other major point for concern is the fact that the economy dipped into recession even before the recent turmoil, worsening the economic situation, additionally to the loss of precious lives. The Palestinian Authority has injected some measures to strengthen its fiscal position, but still faced a financing gap of about US$ 350million for the third quarter of 2014; this value even excluded expenditures on the Gaza conflict (Koussa, 2014).

This kind of breeze in any economy is a nightmare for investors and a deterrent for prospective ones. Its impact on shareholders' value is not pleasant and the future of businesses becomes murkier. To protect the resources of shareholders, the assessment of the probability of listed companies running into bankruptcy has becomes even more paramount. This study attempts to assess the ability of non-banking companies on the Palestine Exchange (PEX) to escape bankruptcy in the next two years. Specifically, the objective for the study is:

- To identify the likelihood of non-banking companies on the Palestine Exchange going into bankruptcy.

LITERATURE REVIEW

The ability to predict bankruptcy is dependent on models whose variables require other models or relatively complex formulas to ascertain. Diakomihalis (2012), believes that the difficulty with working with these models subdues their popularity, but goes on to acknowledge the role that technology has played in making it accessible. Today, there are mobile applications (e.g. Altman Z-Score Scanner for Android, iOS and Blackberry), built on widely accepted insolvency prediction models, that can generate Z-Series scores, ascertain the probability of loan default, analyse three years or more trend of a company amongst many other useful features.

In 1968, Edward Altman developed the Z-Score model to help predict the financial distress of manufacturing firms in the United States. The model does that by closely matching the scores of a company under review to another company which has filed for bankruptcy to unearth any significant resemblance. It is therefore widely accepted as a measure of corporate financial distress (Li, Prediction of Corporate Bankruptcy from 2008 Through, 2012). Altman is credited with being the pioneer of insolvency prediction, with his model having a degree of 95% rate of accuracy. It employed liquidity ratio, financial leverage, profitability ratio, activity ratio and solvency ratio to predict bankruptcy. William Beaver (1967, 1968) was the first to successfully apply some of these ratios to distinguish between failed firms from successful ones, and predicting the possibility of bankruptcy up to five years (Diakomihalis, 2012). Edward Altman later improved Beaver's work by employing multiple discriminant analysis (MDA). Before that, he acknowledging that *"ratio analysis presented in this fashion is susceptible to faulty interpretation and is potentially confusing. For instance, a firm with a poor profitability and/or solvency record may be regarded as potentially bankrupt. However, because of its above average liquidity, the situation may not be considered serious"* (Altman E. , 2000).

Gunathilaka (2014), sampled 82 firms listed on the Colombo Stock Exchange from different industries, with the aim of using the Z-score models of Altman and Springate to predict financial distress in Sri Lanka. The data sampled for the selected company was from 2008 to 2012 and analysed independently, incorporating multivariate discriminat analysis (MDA). Both models employed showed similar results, though Altman's Z-Score demonstrated a higher degree of accurately predicting the financial distress of the selected companies, at least a year before the distress. Altman's Z-Score showed *"the potential of minimizing the error of classifying a firm as safe when the firm is not safe."*

Diakomihalis (2012), employed all three versions of Altman's model to study the bankruptcy predictions for different classes of hotels in Greece. The models were able to determine that 40 percent of the sampled firms were in the distress zone. A Z1 score of below 1.8, with Z2 and Z3 model percentages of 44.5 and 36.3 respectively, confirmed the Z1 model as the most accurate (88.2 percent in 2007), predicting bankruptcy a year ahead of the other models. The study was able to unearth a proof of one-quarter of the selected firms located in the distress zone certainly opting to file for bankruptcy. The researcher emphatically concluded that *"the Altman model can be applied with considerable success (i.e., a high degree of reliability and accuracy)"* to forecasting bankruptcy.

Another study by Bardia (2012), which was conducted on two leading steel manufacturing companies in India, one belonging to the public sector and the other private (which as at the time of the study was the largest private company in the country). The objective was to predict and compare the financial distress of the two companies using Altman's Z-Score model, incorporating several financial ratios. It was also to examine the long term solvency of the selected companies, using the same statistical technique. The Z-Score model enabled researchers to acknowledge that both companies were at risk of bankruptcy, with an advice to management of the companies studied to critically assess their solvency positions.

The aftermath of the 2008 global financial crises propelled many studies on the subject of finacial distress, as the interest in knowing which companies had the potential to survive the immediate future rose, with Lupu & Petrisor (2013), taking keen interest in analyzing ten selected companies on the Bucharest Stock

Exchange (BSE), with data for the 2010-2011 period. A major finding was that *"the direct costs of insolvency or bankruptcy (legal fees, accounting honor, the auditors and lawyers) are low compared to losses that can record shareholders/creditors as a result to decrease firm value."* Researchers stipulated the need for pragmatic actions to tackle the challenges the crisis brought, as it hampered the ability of the Altman model to correctly make bankruptcy predictions.

Many researchers have applied Altman's models successfully in many areas of finance and its related subjects including financial failure of publicly traded companies (Lifschutz and Jacobi, 2010), capital structure and strategic management (Allayannis, Brown, & Klapper, 2003; Molina, 2005; Calandro, 2007), investment decisions (Sudarsanam and Lai, 2001; Lawson, 2008), asset and credit risk estimation (Kao, 2000; Griffin and Lemmon, 2002; Ferguson and Shockley, 2003; Jayadev, 2006) and distressed securities (Marchesini, Perdue, & Bryan, 2004; Gerantonis, Vergos, & Christopoulos, 2009), as Diakomihalis (2012), reckons.

The Palestine Exchange (PEX) was established in 1995 to promote investment in Palestine as a private shareholding company and transformed into a public shareholding company in February 2010 responding to principles of transparency and good governance. The PEX was fully automated upon establishment- the first fully-automated stock exchange in the Arab world and the only Arab exchange that is publicly traded and fully owned by the private sector. The PEX operates under the supervision of the Palestinian Capital Market Authority. There are 48 listed companies on PEX as of 31/03/2015 with market capitalization of about $2,993 billion across five main economic sectors; banking and financial services, insurance, investments, industry, and services. Most of the listed companies are profitable and trade in Jordanian Dinar, while others trade in US Dollars. In 2005, with the development of the legal structure of the securities sector in Palestine, particularly the issuance of the Securities Law No. (12) of 2004 and the Capital Market Authority Law No. (13) of 2004, the Palestine Capital Market Authority (CMA) took over the responsibility of supervising the PEX and issuing securities by the public shareholding companies (Palestine Exchange, 2015).

METHODOLOGY

The most widely used and most researched method for predicting the possibility of bankruptcy remains Altman's Z score model. The researcher relies on this model for the prediction because despite several criticisms of the model, there is extensive empirical evidence of its high prediction accuracy (Li, Prediction of Corporate Bankruptcy from 2008 Through 2011, 2012). A study that compared Altman's Z-score and Distance to Default using companies that included non-manufacturing companies identified that Distance to Default had superior ordinal power ability to distinguish companies most likely to file for bankruptcy from companies least likely to file for bankruptcy and superior cardinal ability to predict bankruptcy but it did not have ratings as stable as Altman's Z score model (Miller, 2009).

Altman's Z Score Model

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$$

Where,
X_1 = Working Capital / Total Assets
X_2 = Retained Earnings / Total Assets
X_3 = Earnings before Interest and Taxes / Total Assets
X_4 = Market Value of Equity / Total Liabilities
X_5 = Sales / Total Assets

Zones of Discrimination
Z > 2.99 -"Safe" Zones
1.81 < Z < 2.99 -"Grey" Zones
Z < 1.81 -"Distress" Zones
Companies with a Z-scores greater than 2.99 are in the "safe" zone. That means they are not in financial distress. Those with Z-scores between 1.8 and 2.99 are in the "grey zone" and those with Z-scores less than 1.8 are in the "distress" zone.

The Data
Data for the research was collected from the financial statements that are public records published at the Palestine Exchange (PEX). There are 49 listed companies in the PEX, the 8 listed banks were excluded because of the differences in the presentation of the financial data. Our data is therefore consists of 41 listed companies. The companies were distributed among four sectors as follows:
Industry - 12 companies (29.3%)
Insurance - 7 companies (17%)

Investment - 10 companies (24.4%)
Service - 12 companies (29.3%)
All data collected was for income statements for the year ended December 31, 2014 and statements of financial position as at that date. The ratios needed for the Altman model were then calculated from the data.

RESULTS OF THE STUDY
Table 1: Descriptive Statistics

Statistic	Group Mean
X1	**0.0009**
X2	**-0.023**
X3	**0.0403**
X4	**3.3942**
X5	**0.4259**

Table 2: Financial Distress of Companies

Sector	Safe Zone	Grey Zone	Distress Zone	Total
Industry	5	3	4	12
Insurance	0	0	7	7
Investment	3	2	5	10
Service	2	5	5	12
	10	**10**	**21**	**41**

The companies were classified according to their Z-score as stated in the methodology. The Table 2 shows the distribution of the companies according to their level of financial distress. A total of 10 (24%) companies are in the safe zone, 10 (24%) are in the grey zone and 21 (52%) are in the distress zone. 42% of the Industry companies are safe, 25% are in the grey zone and 33% are in distress. Of the Insurance companies, all of them are in distress. The Investment companies have 30% in distress, 20% in the grey zone and 50% in distress. The Service segment has 16% of its companies in the safe zone, 42% in the grey zone and 42% in the distress zone.

This makes the Industry sector the least likely sector to have companies that may go bankrupt. The Investment sector is the second in terms of the proportion of companies that are in the safe zone. The Service sector has the third highest proportion of companies not likely to file for bankruptcy. The Insurance sector has all its companies in the financial distress zone. It is the sector with the most companies likely to file for bankruptcy.

CONCLUSION
Based on the analysis of the data, the researcher discovered that the most likely category of companies to file for bankruptcy are insurance companies. All seven of the insurance companies in the stock exchange were in the distress zone. It implies that for the PEX, the insurance companies are the most risky to invest in because of going-concern problems. This may be because the turmoil in Palestine may require a lot of insurance claims. The results with regards to insurance companies are interesting and the researcher recommends a further study on bankruptcy prediction of insurance companies.

The companies engaged in services were the second most likely to file for bankruptcy with a significant 42% of them in distress. Only 16% of those companies are in the safe zone. Once again this may be explained by the economic downturn that Palestine went through in 2013 and 2014. It is also possible that the turmoil makes it difficult for services to be rendered, even if people need it more. The companies engaged in investment were the second safest, which is a positive sign for an economy in need of investment. But even then, 50% of them are in financial distress.

The companies engaged in industry were the safest, as a majority were in the safe zone. But even though 5 of the companies were in the safe zone, 4 were in the distress zone. The fact that the safest of the sectors had almost the same number of companies in safety and distress is an indication of the overall volatile nature of the PEX. This is buttressed by the point that the overall number of companies in the distress zone were 52%.

REFERENCES
Allayannis, G., Brown, G. W., & Klapper, L. F. (2003). Capital structure and financial risk: Evidence from foreign debt use in East Asia. Journal of Finance, 2667–2709.
Altman, E. (2000). Predicting Financial Distress of Companies: Revisiting the Z-Score and ZETA Models. New York: Stern School of Business, New York University.
Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy.

Journal of Finance, 23, 589-609.

Bardia, S. C. (2012). Predicting Financial Distress and Evaluating Long-Term Solvency: An Empirical Study. The IUP Journal of Accounting Research & Audit Practices, XI(1), 47-61.

Beaver, W. (1966). Financial Ratios as Predictors of Failures. Journal of Accounting Research, 4, 71-127.

Calandro, J. (2007). Considering the utility of Altman's Z-score as strategic assessment and performance management tool. Strategic & Leadership, 35(5), 37-43.

Deakin, E. B. (1972). A Discriminant Analysis of Predictors of Business Failure. Journal of Accounting Research.

Diakomihalis, M. (2012). The accuracy of Altman's models in predicting hotel bankruptcy. International Journal of Accounting and Financial Reporting, 2.

Ferguson, M. F., & Shockley, R. L. (2003). Equilibrium anomalies. Journal of Finance, 58(6), 2549-2580.

Gerantonis, N., Vergos, K., & Christopoulos, A. (2009). Can Altman Z-score Models Predict Business Failures in Greece? 2nd International Conference Quantitative and Qualitative Methodologies in the Economic and Administrative Sciences (pp. 149-154). TEI of Athens: (Ed) Frangos C.

Griffin, J., & Lemmon, L. (2002). Book-to-market equity, distress risk, and stock returns. Journal of Finance, 57(5), 2317–2336.

Gunathilaka, C. (2014). Financial Distress Prediction: A Comparative Study of Solvency Test and Z-Score Models with Reference to Sri Lanka. The IUP Journal of Financial Risk Management,, XI(3), 40-50.

Hillegeist, S. A., Keating, E. K., Cram, D. P., & Lundstedt, K. G. (2004). Assessing the Probability of Bankruptcy. Review of Accounting Studies, 9, 5–34.

Jayadev, M. (2006). Predictive power of financial risk factors: An empirical analysis of default companies. The Journal for Decision Makers, 31(3), 45-56.

Kao, D. L. (2000). Estimating and pricing credit risk: An overview. Financial Analysts Journal, 56(4), 50-66.

Koussa, M. (2014). Palestinian Economy in Decline and Unemployment Rising to Alarming Levels. The World Bank. Retrieved from http://www.worldbank.org/en/news/press-release/2014/09/16/palestinian-economy-in-decline-and-unemployment-rising-to-alarming-levels

Lawson, R. (2008). Measuring company quality. Journal of Investing, 17(4), 38-55.

Li, J. (2012). Prediction of Corporate Bankruptcy from 2008 Through. Journal of Accounting and Finance, 12(1), 31-41.

Li, J. (2012). Prediction of Corporate Bankruptcy from 2008 Through 2011. Journal of Accounting and Finance, 31-41.

Lifschutz, A., & Jacobi, S. (2010). Predicting Bankruptcy: Evidence from Israel. International Journal of Business and Management, 5(4), 133-141.

Lupu, D., & Petrisor, M. B. (2013). The Forecast of Bankruptcy Using Altman Model. The USV Annals of Economics and Public Administration, 13, 154-161.

Marchesini, R., Perdue, G., & Bryan, V. (2004). Applying bankruptcy prediction models to distressed high yield bond issues. Journal of Fixed Income, 13(4), 50-56.

Miller, W. (2009). Comparing Models of Corporate Bankruptcy Prediction: Distance to Default vs. Z-Score. MorningStar, Inc.

Molina, C. A. (2005). Are firms underleveraged? An examination of the effect of leverage on default probabilities. Journal of Finance, 60(3), 1427–1459.

Palestine Exchange. (2015, April 16). About Palestine Exchange. Retrieved from Palestine Exchange: http://www.pex.ps/PSEWebSite/English/AboutPSE.aspx?TabIndex=0

Sudarsanam, S., & Lai, J. (2001). Corporate financial distress and turnaround strategies: An empirical analysis. British Journal of Management, 12(3), 183-199.

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