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Exploring the Probability of Bankruptcy for Conventional Insurance Companies Listed at Kuwait Stock Exchange and its Effect on Their Share Prices

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Abstract

Insurance is a crucial component of any financial sector, the financial soundness of the insurance sector will result in a healthier financial system in any country. The insurance sector is responsible for transferring risk from one entity to another, for premium, to hedge against any risk of unexpected loss. For that, the insurance sector plays the role of safety net for the whole of the financial system in any country. This study aims to detect the existence of signs of financial failure for conventional insurance companies listed at Kuwait stock exchange (KSE). The study uses the Altman Model to calculate the financial failure indicators. The research also measures the relationship between the financial failure score and the share price of these companies. The analysis is based on the belief that financial reports provide information to investors which can be taken as indicators of the financial failure or success of companies. This information will affect investment decisions which, in turn, will be reflected on the share price. This study is based on the financial data of conventional insurance companies listed at Kuwait stock exchange for the period spanning from 2010 to 2017. A panel data collected from the financial statements of the four conventional insurance companies listed at the stock market were used to calculate the financial failure score for these companies. Ordinary least squared (OLS) regression method, is then used to evaluate the relation between Altman's z-score and the share price of these companies. Results obtained from this study showed that conventional insurance companies operating in Kuwait had a healthy financial positions and therefore safe from bankruptcy risk. The study also revealed that there was no statistically significant relation between Altman's score and the share price indicating that the financial failure score does not have an effect on share price of conventional insurance companies listed at Kuwait stock exchange.

Keywords: Altman's bankruptcy model; Financial failure; Financial soundness; Financial distress; Insurance companies; Financial ratios; Kuwait stock exchange (KSE).

1. Introduction

The insurance industry in Kuwait can be rooted back to the early 1960's where the first insurance company, Kuwait insurance company, was established in 1960. Now there are almost 40 insurance companies operating in Kuwait.

Table-1. Conventional Insurance Companies listed at Kuwait stock exchange

No.	Company Name	Establishing Year
1	Kuwait Insurance company	1960
2	Gulf Insurance Company	1962
3	AlAhlia Insurance Company	1962
4	Warba Insurance Company	1976

In Kuwait insurance companies are divided into either Islamic or conventional, while Islamic insurance companies work under the Islamic law by applying Takaful which is the Islamic form of insurance, other insurance companies that does not follow Islamic laws are labeled as conventional insurance companies. The insurance sector plays a crucial role in any financial system, a successful operation of the insurance sector would result in a stronger financial system which in turn boosts other industries and general economic development. Naveed *et al.* (2011) stated that the efficiency of the insurance sector in transferring risk can affect economic growth while at the same time institutional insolvencies can result in systemic crises which have unfavorable consequences for the economy as a whole. Predicting financial difficulties in any company financial condition is important for all party that deals with this company such as its shareholders, clients, creditors and even the employees in that company. It is clear that the ability to assess corporate failure accurately is important from the perspective of all parties that are associated with that company (Chen *et al.*, 2011).

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Elloumi and Gueyié (2001), defined any company that has a negative net income for two consecutive years as a company under financial distress. Almilia (2006), stated that a company experiencing financial distress is when a company suffers from negative net operating income and is not paying dividends for two consecutive years. Altman (1968), used Multiple Discriminate Analysis (MDA) to construct a model that measures the financial soundness of companies and perform as an early warning system for these companies. The Multiple Discriminate Analysis (MDA) is a statistical technique that identifies some financial ratios that are considered the most important in influencing the value of an event, and then it is developed it into a model with a view of making it easier to draw conclusions from an event. Moscalu and Vintila (2012), stated that financial ratios have always been seen as an accurate predictor of the financial soundness of any company. Subramanyam and Wild (2013), concluded that financial analysis is a very useful tool that significantly assists business decision making.

VenkataRamana *et al.* (2012), used Altman z-score model to examine the financial performance and predict the risk of bankruptcy for Indian cement companies over the period 2001-2010. They found that KCP Ltd and Kilogram Industries Ltd. experienced poor financial performance and were experiencing financial difficulties. Yet, Dalmia Bharat Ltd. was on the threshold of bankruptcy. They suggested that the use of Altman's bankruptcy model for research is still applicable. Azhar and Ramesh (2017), used Altman's z-score and showed that the majority of companies in India do not have good financial health, thus they pointed out that there was an urgent need for their administration to examine and reduce the financial difficulty of their companies. Maina and Sakwa (2017), used Altman's z-model to examine the financial soundness of companies in Kenya and they were able to distinguish between companies with good financial position and companies that were in the danger zone. Al Ali (2018), used Altman's model to examine the financial soundness of the three mobile telecommunication companies listed at Kuwait stock exchange over the period 2013 to 2016. The results from this research revealed that only one company had a healthy financial position while the other two were facing the threat of bankruptcy. Stepanyan (2014), conducted a study on seven largest airline carriers in the United States during the period 2000-2012 and concluded that none of the airline carriers had a z-score that was in the safe zone in 2012. The research also added that only two carriers, Alaska air and Southwest airlines, were in the gray area while all the remaining carriers were in verge of bankruptcy. But despite having a low z-score for 6 year in a raw, only American airline filed for bankruptcy in 2011. Djamaluddin *et al.* (2017), compared the accuracy of Altman z-score model against Zmijewski model in determining the probability of financial distress of Japanese electronics manufacturers listed at Tokyo stock exchange over the period 2009-2015. They concluded that Altman model was more accurate in detecting financial distress prior to its occurrence with an accuracy rate of 60.71% compared to 53.57% for Zmijewski model.

The financial health of any company is a vital piece of information affecting the decisions of both investors and creditors of that company. While the investors are concerned about the value of their investments and creditors are also concerned about the ability of the company in repaying their loans back, therefore these concerns will have an effect on the share price of the company. Al Saedi and Al Tamimi (2018), examined the relation between Altman's z-score and the share price of industrial companies listed at Qatar stock exchange over the period 2008 to 2017 and found a statistically significant relation between them. Al Ali (2019) conducted a study on the effect of Altman's Zeta model score on the share price of healthcare companies listed at Kuwait stock exchange over the period spanning from 2013 to 2017 and came up with the same results that there was a statistically significant relation between Altman's Zeta score and the share price.

2. Methodology

Altman's z-score model is constructed based on financial ratios, (Husein and Pambekti, 2014) concluded that financial ratios founded in the company's financial statement are an efficient way to analyze the financial soundness of the company and can be used to anticipate future financial difficulties. Altman's z-score is a linear combination of four financial ratios, weighted by coefficients. The coefficients are estimated by identifying a set of firms which had declared bankruptcy and then collecting a matched sample of firms which had survived, with matching by industry and approximate size (assets).

Altman (1993), was developed to measure the financial soundness for non-manufacturing companies. The formula used is as follow;

$$Z = 6.56\,X1 + 3.26\,X2 + 6.72\,X3 + 1.05\,X4 \qquad \text{(Equation 1)}$$

Where;

X1 = working capital (current assets (CA) – current liabilities (CL)) / total assets (TA)

X2 = retained earnings (RE) / total assets (TA)

X3 = earnings before interest and tax (EBIT) / total assets (TA)

X4 = total equity value (TE) / total liabilities (TL)

The results obtained from the model is then compared to a benchmark that is set to determine the financial soundness of the company. The criteria used to interpret the z-score model is;

- Safe Zone if z-score > 2.60 (Risk free)
- Gray Zone if 1.10 < z-score < 2.60 (at risk)
- Distress Zone if z-score < 1.10 (In distress)

Following Tomasevic (2014) the probability of financial distress for a company over the next two years can be derived from the Altman z-score using the following formula:

$$Prob = 1 - \frac{e^z}{1+e^z} \qquad \text{(Equation 2)}$$

Where *Prob* is the probability of bankruptcy and *z* is the Altman z-score. In examining the nexus between Altman's z-score and the share price of the company equation 3 is performed as follow:

$$SP_{it} = \alpha + \beta lnz_{it} + \varepsilon \quad \text{(Equation 3)}$$

Where SP_{it} is the share price of company *i* at time *t*, lnz_{it} is the natural logarithm of the z-score of company *i* at time *t* and ε is the error factor.

3. Data and Empirical Results

The aim of this paper is to predict the financial soundness of conventional general insurance companies listed at Kuwait stock exchange market over the period 2010-2017 and its effect on the share prices of these companies. The results in this study are based on data collected from companies' annual reports. The annual reports were obtained from the Kuwait stock exchange website.

In examining the components of the z-score for the companies under study, it can be seen from table 2 that one of the reasons for the high z-score of Kuwaiti insurance company was its high networking capital to total assets ratio which has the second highest weight in calculating the z-score. This ratio is set to measure the ability of the company in covering its short-term financial obligations. Having a higher ratio would indicate that the company has the ability to face any unexpected short-term obligations. Kuwait insurance company maintained an average ratio of 0.651 compared to 0.495 for AlAhlia insurance company. It can be noted that none of the companies in any year during the study period showed a negative ratio where current liabilities exceeded their current assets. The table also shows that Kuwait insurance company had always maintained a networking capital to total assets ratio that was above the industry average in every year during the study period. On the other hand both Warba and Gulf insurance companies always had that ratio lower than the industry average in every year.

In terms of retained earnings to total assets ratio, a ratio that measures the amount of assets funded by retained earnings rather than debt, AlAhlia insurance company had the highest average of 0.412 meaning that 41.2% of its assets are funded by retained earnings, followed by Warba insurance company where it had a ratio of 0.306. Gulf insurance company came at the bottom in that category where they scored an average ratio of only 0.187. In that matter, it can be seen that AlAhlia insurance company had maintained a ratio that was above the industry average in every year while Warba insurance company was above the industry average for the first 6 years of the study, 2010 to 2015, but went below the average in the remaining two years. On the other hand, Kuwait insurance company was below the industry average for the first 6 years but went above it in the years 2016 and 2017.

Earnings before interest and tax (EBIT) to total assets ratio is a profitability measure where it examines the effectiveness of the company in generating profits out of its assets. Due to the importance of that ratio, it hold the highest weight in the equation of 6.72 which makes it the most important component. In this part of the equation, AlAhlia insurance company had the highest mean during the period with a ratio of 0.049 which means that the company generates a return on assets of 4.90% followed by Gulf insurance company which showed an average return on assets of 4.79%. Both Gulf insurance company and AlAhlia insurance company were able to maintain a ratio that was either above or equal to the industry average in every year of the study while Warba insurance company never achieved a ratio that was equal or above the industry average in any year of the study which raises the question of the efficiency of their management in generating revenues from their available assets. Adding to it, Warba insurance company was the only company that showed losses during the last two years of the study period.

Finally when it comes to total equity value to total liabilities ratio, which is a leverage ratio that measures the ability of fulfilling the company financial obligations using shareholders equity, AlAhlia insurance company had the highest ratio of 1.091 which indicates that the company is able to cover all the liabilities on the company through its shareholders equity. Kuwait insurance company came second with shareholders equity covering 61.3% of its total liabilities. On a year to year basis, it can be seen that only AlAhlia insurance company was able to achieve a ratio that was above the industry average in every year while Kuwait insurance company was able to beat the industry average in only two years, 2015 and 2017, and Warba insurance company was able to score a ratio that was above the industry average in only one year, 2010.

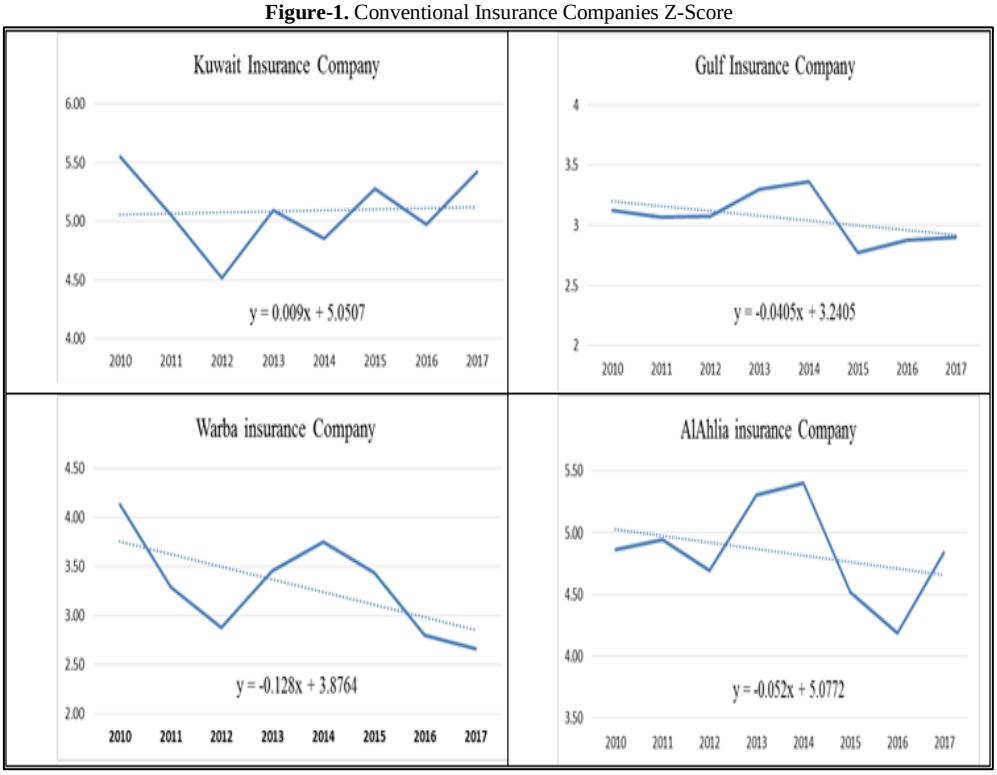
Table-2. Bankruptcy and Probability Results

Kuwait Insurance Company									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
X1	0.67	0.63	0.58	0.64	0.63	0.68	0.69	0.69	0.651
X2	0.27	0.25	0.21	0.28	0.27	0.27	0.28	0.32	0.269
X3	0.03	0.04	0.03	0.03	0.03	0.04	0.00	0.05	0.030
X4	0.92	0.70	0.54	0.65	0.52	0.57	0.46	0.55	0.613
Z-Score	5.55	5.05	4.52	5.09	4.85	5.28	4.97	5.42	5.091
Probability	0.39%	0.64%	1.08%	0.61%	0.77%	0.51%	0.69%	0.44%	0.64%
Gulf Insurance Company									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
X1	0.37	0.35	0.37	0.40	0.41	0.32	0.34	0.37	0.367
X2	0.20	0.19	0.19	0.19	0.20	0.20	0.18	0.14	0.187
X3	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.02	0.036
X4	0.52	0.58	0.49	0.47	0.45	0.48	0.45	0.40	0.479
Z-Score	3.12	3.07	3.08	3.30	3.36	2.77	2.87	2.90	3.058

Probability	4.22%	4.45%	4.40%	3.57%	3.36%	5.88%	5.35%	5.23%	4.56%
Warba Insurance Company									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
X1	0.43	0.39	0.36	0.42	0.46	0.42	0.38	0.38	0.406
X2	0.36	0.31	0.31	0.36	0.36	0.34	0.21	0.20	0.306
X3	0.03	0.01	0.01	0.01	0.02	0.02	-0.02	-0.01	0.009
X4	1.00	0.60	0.43	0.55	0.58	0.49	0.38	0.20	0.530
Z-Score	4.13	3.29	2.88	3.46	3.75	3.44	2.80	2.66	3.300
Probability	1.58%	3.61%	5.33%	3.05%	2.30%	3.11%	5.76%	6.51%	3.91%
AlAhlia Insurance Company									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
X1	0.45	0.46	0.44	0.49	0.50	0.53	0.49	0.60	0.495
X2	0.44	0.44	0.43	0.46	0.49	0.35	0.34	0.34	0.412
X3	0.06	0.05	0.05	0.06	0.05	0.05	0.04	0.03	0.049
X4	1.31	1.35	1.22	1.45	1.47	0.66	0.66	0.61	1.091
Z-Score	4.86	4.94	4.69	5.31	5.40	4.52	4.19	4.84	4.843
Probability	0.77%	0.71%	0.91%	0.49%	0.45%	1.08%	1.50%	0.79%	0.84%
Industry Averages									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
X1	0.48	0.46	0.44	0.49	0.50	0.49	0.48	0.51	0.479
X2	0.32	0.30	0.29	0.32	0.33	0.29	0.25	0.25	0.294
X3	0.04	0.03	0.03	0.04	0.04	0.04	0.01	0.02	0.031
X4	0.94	0.81	0.67	0.78	0.75	0.55	0.49	0.44	0.678
Z-Score	4.42	4.09	3.79	4.29	4.34	4.00	3.71	3.95	4.073
Probability	1.74%	2.35%	2.93%	1.93%	1.72%	2.65%	3.32%	3.24%	2.49%

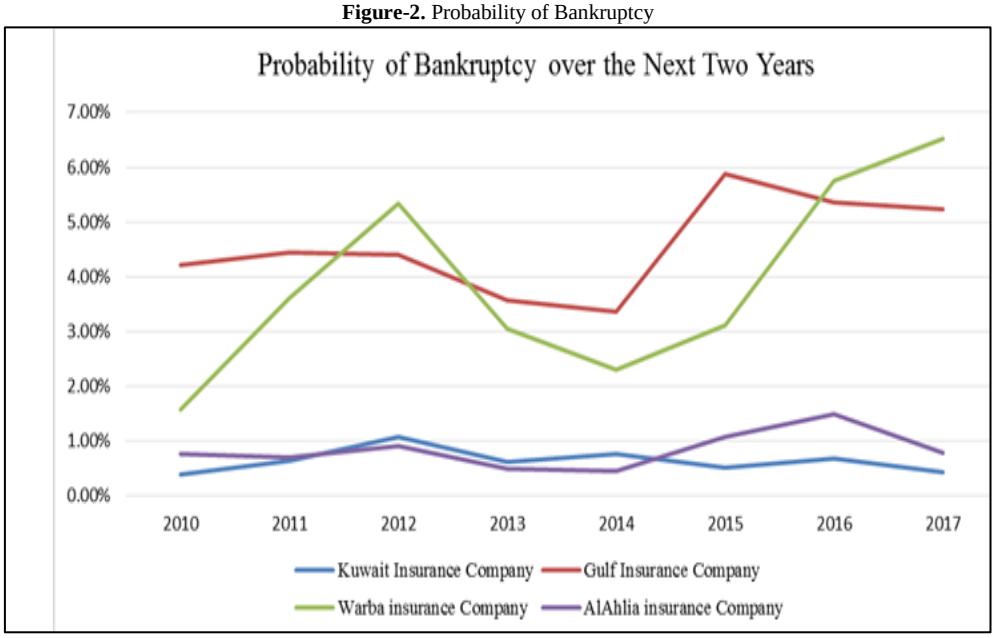
Altman's z-score model is meant to highlight the risk of bankruptcy of a company. By looking at table 2, it can be seen that none of the companies under study are facing this risk. Kuwait insurance companies was the best performer during the study period, the company showed an average z-score of 5.09 followed by AlAhlia insurance company with a score of 4.84. Gulf insurance company was the worst performer among the insurance companies having a z-score of 3.06, never the less this score was higher than the 2.6 threshold set by the model. Adding to it, none of the companies under study went below the safe zone in any year during the study period. But, looking at figure 1, it can be seen that only Kuwait insurance company is still showing an upward trend in its z-score while the all remaining companies are showing a downward trend in their z-scores. Warba insurance company is showing a deteriorating z-score and it is most likely to exit the bankruptcy safe zone and enter into the gray area if no drastic measures are done in the near future.

Figure-1. Conventional Insurance Companies Z-Score



The z-score results are converted into percentage of the probability of bankruptcy and showed that, on average, Kuwait insurance company had a 0.64% chance of being bankrupted within the next two years while Gulf insurance company had a 4.56% chance of being bankrupted within the next two years. In the year 2017, Warba insurance company showed the highest chance of being bankrupted of 6.51% compared to an average of 3.24% for the industry.

Figure-2. Probability of Bankruptcy



In examining the relation between Altman's z-score and the share price of these companies to see if investors take the financial risk of these companies into consideration when making their investment decisions, it can be seen from table 3, that there was no statistically significant relation between them. The relation was ignored since the p-value of the independent variable in the regression model was 0.5698 which is way higher than the 5% and the 10% confidence levels. This result contradicts the finding of Al Saedi and Al Tamimi (2018) and Al Ali (2019) that there is a statistically significant relation between Altman models scores and the share price of the companies. While Al Ali (2018) conducted their research on the industrial sector in Qatar and Al Ali (2019) conducted his study on the healthcare sector in Kuwait and they all found a statistically significant relation between the share price and Altman's financial failure models scores they only examined these particular sectors and not the whole market and for that their findings cannot be generalized to all sectors in the market. Also, they only conducted their studies on one market which means that their findings were for that particular market and may not be valid for other markets. The conclusion that can be made here is that the relation does not cover all sectors of the market rather it exists in certain sectors of the market but not all sectors and for that it cannot be applicable to the whole market and that the relation might exist in one market that does not necessarily mean that it would occur in other markets.

Table-3. Regression output

Independent Variable	**Coefficient**	***t-Stat***	***p-Value***
Ln Altman's z score	-0.8365	-0.5746	0.5698
R-square	0.0109		
F-Statistics	0.3302		
Prob (Significance *F*)	0.5698		

4. Conclusion

Insurance is a vital component of any financial sector, the financial soundness of the insurance sector will result in a healthier financial system in any country. This study was set to examine two issues, the first one was to measure the financial soundness of conventional insurance companies listed at Kuwait stock market and the other issue was to investigate the relation between the financial soundness score and the share price of these companies. The results showed that all four companies under study had a healthy financial position and were safe from bankruptcy for the next two years at least. The results also showed that there was no statistically significant relation between the financial distress score, Altman z-score, and the share price of these companies. Since the results from this research contradicts the findings of other researchers that conducted similar research, this would draw a conclusion that the effect of Altman's z-score model is applicable in some sectors in the stock market but not to be used for all the sectors and also this relation might differ from one market to another.

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