

## **A Study of the Strategic Performance of Shareholding Industrial Organizations in Jordan: Using Z- Score Model**

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### **Abstract**

*This research aimed at answering the following question: To which level the strategic healthiness of Jordanian Shareholding industrial organizations. Strategic performance was measured using Altman’s Z-Factor Formula which developed by Altman in 1968. Specifically it aims to examine the level of strategic performance of the Jordanian shareholding industrial organizations. Altman’s Z-Factor Formula includes five variables: Working Capital / Total Assets, Retained Earnings / Total Assets, Earnings Before Interest and Taxes / Total Assets, Market Value of Equity / Total Liabilities, and Sales / Total Assets. Each variable express a financial ratio and a constant value for each variable as specified by Altman using the Multiple discriminate analysis. The study population consisted of industrial organizations listed in Amman stock exchange.. Statistical Package for Social Sciences (SPSS) was used to test the study hypotheses and to achieve the objective of the study. Results of the research indicated that Jordanian shareholding industrial organizations have low strategic healthiness.*

**Keywords:** strategic performance, Z-Factor, Industrial sector, Jordan.

### **1. Introduction**

At present, the work of the organizations rocks with some conditions which promote them to improve their performance more than any other time, such as; increasing global competition, technological progress, the restructuring of organizations and the unstable economic conditions. For creating high-performance, the organizations apply modern management concepts of various kinds, as they work permanently to succeed and survive, and this makes them continually strives to develop and modify their strategies, products, and use renewable tools and methods. Therefore, the management of modern organizations is seeking to take advantage of the knowledge and the sciences that created and developed continuously by researchers (Al-Safo, 2009).

Changing the Environment is considered as one of the difficult challenges that faces individuals, organizations and communities alike. Accordingly, the Study of the Strategic performance through a wide and different range of organization is an essential issue, to know how organizations can adapt to these changes or problems caused by changing the environment, and in response to the organization’s need to change and transform in order to increase their competitiveness and ensure their survival. (Kontoghiorghes et al., 2005; Ellinger et al., 2003; McHargue, 1999). Organizations realize the importance of strategic performance in their life because of its impact on the Organization's success, its ability to continue and develop, satisfy the customers and increase the profits, particularly during the rapid contemporary changes that affect the future of managerial organizations. However; new challenges were imposed on the organizations represent in the quest to realize and understand, introduce advanced systems and reflect on the ideas and recent trends, which give them the trend of modernization and development (Al-Madi, 2005).

Understanding the strategic performance is the base of research in strategic management (Rumelt et al., 1994), while measuring the strategic performance is the way that is applied by the organizations in evaluating the effectiveness of the development and implementing strategy, thus making the process of clarifying “how the measuring of the strategic performance”, is essential for achieving the goals of the Organization (Barney, 1997).

It was proved in various studies that traditional measures used to assess the strategic performance of organizations are incapable to give a real vision for the strategic direction, because they measure the past performance while strategic performance requires pro-active measures to become measurable and predictable (Sim & Koh, 2001).

Alternative methods have been developed to assess the strategic position which includes the ability of the Organization to create and maintain certain capabilities to help them to proceed and develop. (Chenhall, 2005). , Where you can define an organization's strategic position as a total available administrative resources and capabilities that can be used to efficiently ensure the long term success of organizations (Verweire and Berghe, 2007). On the other hand, other researches in the strategic management have shown that strategy should measure the strategic healthiness of the organization, through the use of multiple disciplinary analysis such as Altman's Z - factor Formula (Chakravarathy, 1986).

This study is very important for researchers, academics and professionals, since the general purpose of this study is to test the strategic performance of industrial organizations listed on Amman Stock Exchange Market in Jordan, as this study covers an important sector of the economy which is linked to the element of investment in each stage of economic development representing in the industrial organizations in Jordan. This sector was selected for the importance of investment and economic development work that is being done by it, where it is the second largest contributor to the economy after the financial sector and insurance, as its contribution to the GDP amounted 17.6%, according to economic data for the year 2013 (The Report Jordan, 2013). After a review of the literatures of this subject, the researchers found that there is a scarcity of studies in the field of strategic performance that deal with the industrial sector, and also there is a dearth (within the limits of the knowledge of the researchers) in research conducted in developing countries. This study may be part of the gap to be covered in the theoretical literature on strategic performance. Therefore, this study was to answer the following question: What is the strategic performance level that is represented by value (Z) in the Jordanian public shareholding industrial companies?

## **2. Strategic Performance**

Organizations need a tool to enable them to judge on the appropriateness of the activities and operations to achieve the goals, and to reach the gap between targeted results and the actually achieved results, and the tool is the standard on which to compare the reality with the purpose on the basis of specific criteria in advance, and this is the process of measurement. Performance measurements operations have been subjected to large research and attention in the last period by many researchers. (Rapijah et al., 2009; Srivastave and Sushil, 2013). There are many performance metrics, including traditional metric that focuses on financial performance and gives misleading signals which don't help the organization to achieve improvement and innovation, and makes the managers' expectations, about the operational standards, unrealistic because it depends mainly on the financial metrics. (Henri, 2004)

Managers need metrics that enable them to see the performance from different dimensions. Hence, the emphasis on the use of non-financial indicators with financial indicators became as a modern measure of the performance (Agarwal and Taffler, 2007). Organizations began to focus on strategic performance, accordingly performance measures become related to strategy, and therefore; many researchers suggested to create a performance measure that focuses on the strategic performance and create a balance between them (Amit and Sushil, 2013). On the other hand, Almahmoud et al. (2012) thinks that performance measurement is the force that drives evolution in the management of the organization, and that the performance metrics are considered as tools that have been created and applied in various sectors. However; whoever explores the literatures of this subject will feel that there is a common pattern between the performance standards of efficiency measuring and effectiveness of work.

## **3. The concept of strategic performance**

The strategic performance is defined as a reflection of the organization's ability and its capability to achieve its objectives, so that it reflects how to use all the available resources properly to achieve the targeted goals (Al-Qatamin et al., 2012), where this capability can be evaluated through submitting of the information and data that used to measure the achievement of the objectives of the organization to identify its performance trends.

David (2001: 138) identify the strategic performance as: Group of consequences of the activities and practices of the organization that are expected to meet planned and set goals, while Amiriand Ghalibi (2003) identify it as the essence of strategic management and associated with the long-term objectives.

#### **4. The study methodology**

##### **4.1 The study population and its sample**

The study population includes the Jordanian industrial public shareholding companies, because the industrial sector in Jordan leads an essential part of the investment business and an active element in the economic growth of the country. The strategic performance was measured using the Altman Z Score formula depending on the financial data of industrial companies included in their financial reports, where the researchers calculated the value of Z for each company and for four consecutive years (2009- 2012) and then the average of the Z value for each company - see annexureNo. (4) , but they were unable to enter the financial data of the year 2013, due to the non-disclosure of the financial data – till this time - by companies on the company level or through the Amman Stock Exchange Market .

It is worth mentioning that there are some companies that were excluded from the study because of the unavailability of the financial data for the required period of time to calculate the Z factor, as there are some companies that have been excluded because the result of the Z factor was outside the boundaries of the interpretive values of the Z factor.

##### **4.2 Strategic Performance Scale**

The researchers used the Z - Factor Analysis to measure the strategic performance variable, where this equation - Altman's Z-Factor Formula- , is known as the first and most important multi - dimension measure of the performance , in order to get the exact judgment on the accuracy of the long-term strategic performance. Since it was published in 1968 and was re-tested through a series of research, it was used also to predict the probability of failure of the organizations, asit was used as a tool to evaluate the strategic performance (Calandro, 2007). Altman's Z-Factor Formula equation consists of the system of steps in the private analysis of the following five variables:

X1 = Working Capital / Total Assets

X2 = Retained Earnings / Total Assets

X3 = Earnings before Interest and Taxes / Total Assets

X4 = Market Value of Equity / Total Liabilities

X5 = Sales / Total Assets

After calculating these variables using multi-dimensional statistical method, Altman formed his own model (Altman's Z-Factor Formula), as follows:

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 0.999X5$$

Where the numbers in the equation are constant values for the entire variable related to this multi-dimensional analysis, Altman has issued many Z factors for specific sectors and the researcher used the original version of Z factor, that fits the industrial organizations for the purposes of this study, and after the completion of the calculation, the results will be subjected to classification criteria which will be used to classify the organizations

According to their strategic accuracy, as follows:

Z is greater than 2.99: Organization of strategic healthiness.

Z is less than 1. 80: Organization with low strategic healthiness and this is considered as an index of danger to the existence of the organization.

Z between 2.99 and 1.80: organization with a high strategic performance healthiness but unsatisfactory.

#### **5. Data Analysis**

##### **5.1 Results of Question:**

**What is the strategic performance level that is represented by value (Z) in the Jordanian public shareholding industrial companies?**

To answer this question, Descriptive statistics for the (Z) values were calculated for the Jordanian public shareholding industrial companies that were taken as a sample in the current study and described in Table No. (1).

**Table No. (1)**

**Averages and standard deviations of the study sample estimates on the whole strategic performance which is Represented with (Z) value in the Jordanian public shareholding industrial companies in descending order according to averages**

<b>Descriptive statistics for the (Z) values</b>	<b>Amount</b>
<b>Number</b>	<b>35</b>
<b>Lowest value</b>	<b>-2.06</b>
<b>Highest value</b>	<b>5.16</b>
<b>Average</b>	<b>1.70</b>
<b>standard deviation</b>	<b>1.40</b>
<b>Sprains</b>	<b>-.20</b>
<b>Splaying</b>	<b>1.03</b>

It is noted from Table No. (1) that the Jordanian public shareholding industrial companies have no strategic performance healthiness with an average ( 1.70 ) and standard deviation ( 1.40 ) , where the averages of the ( Z ) values ranged between ( -2.06 ) and ( 5.16 ) .

## **6. Study Result**

This part is discussing the most important findings and conclusions of the study in the light of the results of the statistical analysis and their compatibility or incompatibility with the theoretical aspects included in the study.

The results of the analysis of Z score, which are as follow:

## **7. Determinants of the study and directions for future studies**

Researchers used the Altman Z equation for the purposes of strategic performance measurement, and in order to measure the change in the strategic performance of industrial companies, they have calculated the Z factor for four consecutive years. This equitation includes a range of accounting and financial ratios that measure the strategic performance outputs that Altman worked to address them using the analysis of multi differentiation (MDA), in order to arrange the ratios and priorities of each proportion and calculate constant values for the purposes of strategic performance evaluation.

The scope of the study of included the Jordanian public shareholding industrial companies, and they were different in their industrial activities, as some of them were transformative and others were extractive, also they differed in their outputs as some were specialized in food industry and others were specialized in pharmaceutical, chemical, plastics and fertilizer industries. And these organizations varied in their size and geographical locations.

While browsing the website of the Amman Stock Exchange Market to look into the financial data , there were some organizations that did not include some data , and others didn't complete the required data for calculating the Z factor value, which led to their exclusion . The researchers wishes to calculate the Z factor for the year 2013, the year of gathering the data from the questionnaires, but they were not yet available in the Amman Stock Exchange Market, as the researcher calculated the Z factor value for the last four consecutive years and its average, which makes the Z factor more accurate and reliable than calculating it for only one year.

Some studies can be conducted on other sectors that were omitted by most of the previous studies, as they are vital and important sectors, such as the healthcare sector or the insurance and banking. This study has been done in Jordan, and therefore ; we can circulate those results only the Jordanian environment , and other studies can be performed including Jordanian and non- Jordanian organizations from neighboring countries , or other countries of the world to get results that can be generalized to a larger scale , and a comparative study can be done between types of commercial and industrial organizations or from different sectors , for example, the industrial sector with the banking sector , and can also include the local and international organizations for the purposes of comparison.

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**Table No. (2)**  
**Strategic performance for the Jordanian public shareholding industrial companies**

Z Value	Factory Name /strategic status	No.
	<b>Inaccurate strategy and expected to fail soon</b>	
2.06188-	Village company for Food and Vegetable Oil Industries	32
0.84227-	Public company for the industry of the Lightweight Concrete	31
0.19818-	First National company for the industry and refining of vegetable oils	34
0.099928	Middle East company for Specialized Cables	27
0.190623	Jordanian Paper and cartoon factories	18
0.442341	National Steel Industry	37
0.604585	Jordan company for the processing and marketing of poultry and poultry products	8
0.649849	Jordan Ceramic Industries	35
0.774947	Rum Aladdin company for Engineering Industries	30
0.82281	Food House	10
1.093947	Comprehensive company for Multiple Projects	2
1.164185	Zay garment Manufacturing	40
1.172214	Marble Jordan	16
1.316757	Siniora Food Industries	11
1.6509	South company for Filters Manufacturing	29
	<b>The strategic performance is mediate but not accepted , and they should study the reasons behind this performance</b>	
1.84538	National Cable & Wires company	4
1.861548	National Aluminum Industries	38
1.88251	Middle East company for Pharmaceutical and Chemical Industries and Medical Appliances	20
2.054902	Jordan Chemical Industries	1
2.056427	Jordan Pipes Manufacturing	6
2.122099	International Ceramic Industries	36
2.21971	Dar Al Dawa company for Development & Investment	19
2.227105	Sulphochemical Jordan company	26
2.27977	Jordanian company for Pharmaceutical Manufacturing	21
2.290823	Jordan Steel company	14
2.430918	Demand company for printing and packaging	22
2.43488	Jordan Cement Factories	13
2.450395	Union company for Advanced Industries	23
2.558783	Arab company for aluminum manufacturing / Aral	12
2.72718	United company for the manufacturing of iron and steel	15
2.876118	United Cable Industries	5
	<b>High strategic healthiness</b>	
3.619118	National Company for Poultry	9
3.837273	Jordanian company for the wooden industries /Jwico	7
3.846589	Arab Company for electric industries	28
7.159798	Jordan Phosphates Mines	42

- $Z > 2.99$  -“Safe” Zones
- $1.81 < Z < 2.99$  -“Grey” Zones
- $Z < 1.81$  -“Distress” Zones