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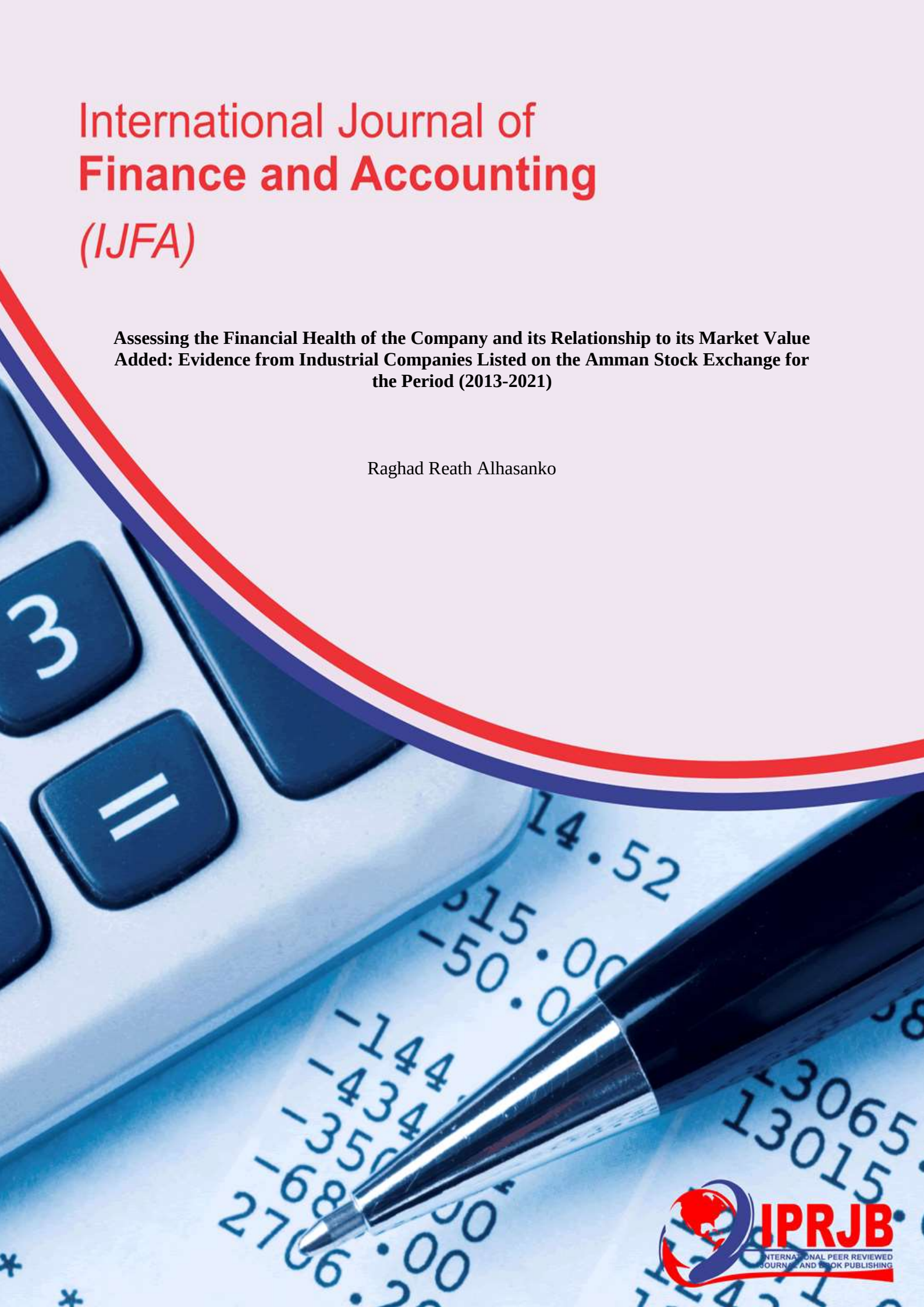

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Assessing the Financial Health of the Company and its Relationship to its Market Value Added: Evidence from Industrial Companies Listed on the Amman Stock Exchange for the Period (2013-2021)

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Abstract

Purpose: The research aimed to analyze the relationship between the financial health of the company and the market value added assuming a significant correlation between the two variables.

Methodology: Financial health was measured based on the Z-Score model while the market value added (MVA) was measured based on the capital invested in the company and the market value of the company. The sample of the study consisted of (8) industrial companies listed on the Amman Stock Exchange for the period (2013-2021). The principal data utilized in the analysis came from the balance sheets and profit and loss reports that were available on the official websites of the research sample companies.

Findings: It was revealed through the analysis of the two variables that the company (APOT) shows higher financial health and market value added than the rest of the companies, followed by a number of companies in the research sample that had good financial health and market value added. Results of the analysis of the relationship between the two variables showed a significant positive relationship between the financial health of the company and the market value added, meaning that the better the financial health of the company, the more its market value increases and thus wealth is added to the owners.

Unique Contribution to Theory, Practice and Policy: The results of this work can be used to improve the financial performance of companies, which calls for regular evaluation of the financial situation, identification of strengths and weaknesses in one's financial position, and an effort to mitigate risks and correct any shortcomings prior to their representation in the financial statements, The firm must also follow a strong financial strategy to achieve success and sustainability in the financial market.

Keywords: *Financial Health, Market Value Added, Financial Performance, Invested Capital, Altman Z-Score, Market Value, Financial Risk, Shareholders*

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INTRODUCTION

The success or failure of any organization depends on the extent to which it achieves its future goals, which in turn depends on the level of its financial performance and well-being or what is known as financial health. The concept of financial health refers to the organization's financial balance in terms of liquidity, financial solvency, profitability, and operational efficiency, which ensure its future growth (Weida et al 2020). Financial health is indispensable for any organization, because it represents the basis that shows its ability to use its resources efficiently, as well as its ability to achieve profitability with the lowest degree of risk.

There are many factors affecting financial health of the company some of which are internal (i.e. profitability, debt, liquidity, and financing structure...etc), and some are external (i.e. the economic, political, and social conditions). Balancing the financial structure plays a major role in determining the financial health of the institution by choosing an appropriate combination with the highest return, lowest risk, and optimal financing, which enables the prediction of the potential of bankruptcy. Assessing the company's financial health is considered crucial to demonstrate its ability to sustain itself financially by increasing revenues in the near term and entering into more profitable investments in the long term, which increases its stock market value (Kliestik et al, 2020). Financial health is considered an indicator for judging performance, a tool for attracting investors and lenders, and evidence of the organizations success in adding wealth to its owners in the form of market value added which expresses the strength of the company and the ability of its market value to exceed the initial invested capital (Nakhaci, 2016) .There are a number of factors that affect the market value added, the most important of which are ; the profit margins, stock price, cost of capital, financial policy and market efficiency of the company (Panahi, et al., 2014).

In this study we attempt to review the most important theories explaining both the financial health of the company and its market value added. Both the financial health and market value added were measured for eight industrial companies listed on the Amman Stock Exchange during the years (2013-2021) as the study sample. The research problem included answering the following question: Is there a correlation between the financial health of the company and the added market value? In order to identify the relationship between the two variables, the study assumed the existence of a significant correlation, given that the more the company enjoys good financial health, the more this leads it to add value to the owners through what is termed the market value added.

LITERATURE REVIEW

Financial Health

Financial health is defined as the ability of the company's financial management to manage revenues and expenses, ensuring a stable financial position and manageable debts for the company (Barnard, et al, 2010). (Banne et al, 2019) define financial health as a perception of the results of a company’s business based on financial reports during a specific period. Meanwhile, (Kliestik et al, 2020) consider financial health as one of the indicators of the organization's ability to achieve long -term growth and success in the competitive market. (Weida et al, 2020) additionally emphasize that financial risk expresses an organization’s capacity to manage expenses, its readiness to recover from unforeseen shocks, achieve profits and growth, compete in the market, evaluate its future position, and avoid financial risks.

Assessing the financial health is considered one of the company's important priorities and is of interest to many parties, including the financial management, investors and lenders, because it

reflects the company's financial position, which affects its market value and its ability to access external financing easily and helps to discover strengths and weaknesses that can support the followed liquidity and credit policies (Murdayanti, et al., 2015).

The assessment of financial health depends on the financial data included in the financial statements, such as the budget and income statement from which financial health indicators can be summarized and used to determine the soundness of the financial position in terms of the company's financial liabilities and determine the true value of its assets, the size of its debts, income, and costs (Statcan,2018). Financial health indicators can be benchmarked with competing companies, producing results about the company's financial position and for predicting the potential of bankruptcy in the future (Gitman, 2009). Thus, financial health can be defined as the assessment of the company's financial position in terms of its capacity to manage financial resources, its commitment to cover its liabilities in a timely manner, and its preparedness to recover from shocks in order to achieve strategic goals and stability.

Financial health indicators can help predict bankruptcy. Liquidity ratios measure a company's ability to meet short-term financial obligations, while debt ratios assess a company's debt repayment capacity. Profitability ratios evaluate a company's ability to generate profit relative to revenue, assets, or equity. Cash flow indicators help understand a company's ability to generate and manage cash. Negative operating cash flow, declining cash reserves, or insufficient cash to cover operational expenses can indicate financial distress and potential bankruptcy. Monitoring and analyzing these indicators over time can provide valuable insights into a company's financial stability and identify potential bankruptcy risks.

Factors Affecting the Financial Health of the Firm

The financial health of the firm is affected by several factors related to its financial performance and its ability to achieve profits and growth. The most prominent of these factors is revenues, as the size and sustainability of revenues reflect the firm's ability to meet its financial obligations and achieve sustainable profits. (Kritsonis, 2005) , In addition, managing costs and expenses effectively plays a crucial role in financial health. The company should carefully monitor and analyze costs and expenses to achieve greater efficiency and reduce financial waste (Daryanto & Samidi, 2018). Providing the necessary financing to meet a company's financial needs is also an important factor in its financial health. The company must be able to obtain adequate financing to finance and expand its business activity and achieve sustainable growth (Rahaman, 2011). The importance of financial risk management cannot be ignored. The company must analyze potential risks and take actions to reduce their impact on financial performance and maintain financial health. The ability to predict future financial developments and develop appropriate financial strategies is also an essential part of financial health. Financial decisions must be based on careful analysis and sound financial estimates to achieve sustainable success. The following figure illustrates the variables influencing of the firm's financial health.

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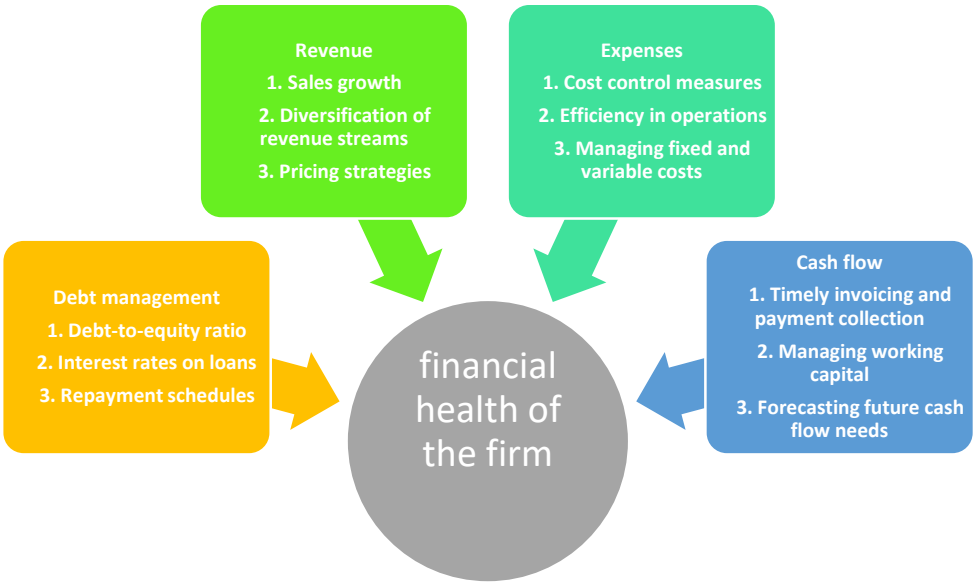

Figure 1: Factors Affecting of the Financial Health of the Firm

Steps to Assess the Financial Health of the Firm

Step 1 – Goals, Strategies and Operating Characteristics

The first step in evaluating a company's future health is to look into its objectives, business plans, and operational features ((Kritsonis, 2005)

Step 2 – Outlook for the Firm's Sales

In order to support future increases in sales and revenue, the market needs to have room to grow, Competitive forces should also be taken into account.

Step 3 – Investments to Support the Product-Market Strategy

The third step of assessing a firm's future financial health involves estimating the current value of the investments that have been made to support the firm's product market strategy (Alkaraan & Northcott, 2006)

Step 4 – Future Profitability and Competitive Performance

The level of profitability has a significant impact on a number of important financial factors. To start, it has a big impact on the company's ability to get debt financing. Second, it has an impact on the company's willingness to issue common stock as well as its valuation. Third, the firm's "sustainable sales growth" looms upon the level of profitability (Murdayanti et al., 2015).

Step 5 – Future External Financing Needs

The firm's need to engage in external financing in the future depends on several business conditions mentioned in steps 1-4. These business conditions are the firm's future sales growth, the length of its cash cycle, future profitability, and profit retention.

(Karakaya et al.,2017)

The following figure shows the steps for Assessing a Firm's Future Financial Health

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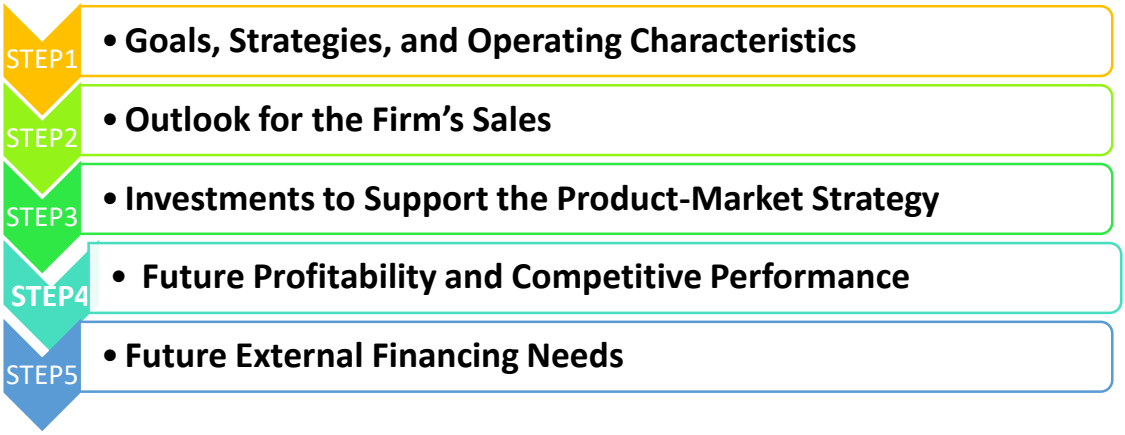

Figure 2: Steps to Evaluate the Financial Health of the Firm

Market Value Added (MVA)

Studies have adopted many indicators to measure and analyze shareholders wealth and the amount of growth in this wealth. Value-based measures have received great attention recently because of their great importance in estimating the value of wealth, the most important of which is the market value added (MVA), which expresses the amount of wealth that a company can make for its shareholders.

The market value added is defined as the difference between the current market value of the company and the initial capital that was invested in it by the owners of stocks and bonds. It is a positive value added to the value of the company resulting from sound financial management and effective operational capacity directing financial resources towards profitable investments (Sareewiwatthana & Wanidw, 2019). This indicator was first defined by (Stern Stewart) as the value that arises when the company's equity market value exceeds its book value. The market value added is considered an indicator of the company's ability to increase the value of equity and increase its operational capabilities. Lower MVA indicates a low market value of the company and its investments are lower than the working capital (Ikbar, et,al,2015) . Therefore, MVA it is considered one of the important indicators along with the economic value added as indicators for evaluating companies' performance (Nakhaci, 2016).

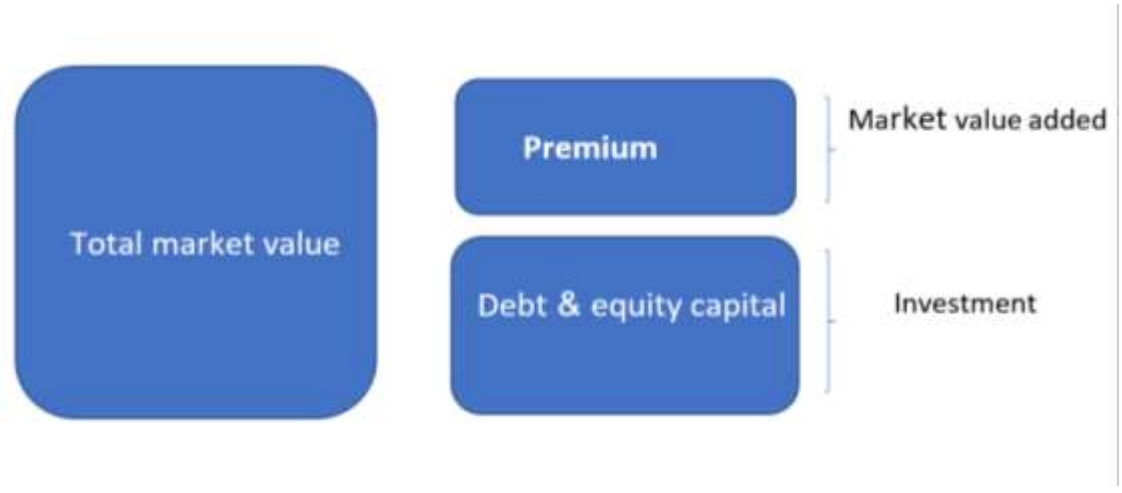

Figure 3: Market Value Added

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Factors affecting the market value added

- Profit margin: The market value added is affected by the profitability of the company as the profit margin is considered an important factor in adding wealth to shareholders. (Faitullah, 2016).
- Share price: The market value added is closely linked to the share price, which in turn is affected by economic, political and social factors that affect all market shares.
- Cost of capital: The lower the cost of capital is than the rate of return, the higher the market value added (Gazia, 2015).
- Financial policy: The market value added is affected by the company's financial policy, such as dividends and investment decisions, as the more the company moves away from risky investments, the greater the possibility of achieving added value.
- Market efficiency: The market value added is affected by financial market factors. The more efficient the market is in reflecting the information correctly, the more the true value of the shares will appear to be compared to the book value and the better the calculation of the market value added (Panhil ,2014).

MATERIALS AND METHODS

Measuring the Company's Financial Health Using the Altman Z-Score Model

Altman Z-Score is a mathematical equation designed to predict the bankruptcy or insolvency of an organization. It was developed and published by Altman (1968).The Z-Score has since become a widely used and reliable measure of an organization's financial health. The Altman Z-Score is based on five most important financial ratios weighted according to their importance, thus maximizing the model's ability to predict the company's position as in the following equation (Kannadhasan, 2007):

$Z=1.2x1+1.4x2+3.3x3+0.6x4+1.0x5$

Whereas:

X^1: Working Capital/Total Assets

X^2: Retained Earnings /Total Assets

X^3: Net Profit before Interest and Taxes/Total Assets

X^4: Market Value of Shares/Total Liabilities

X^5: Sales/Total Assets

- Working Capital / Total Assets Ratio (X1): A high ratio indicates a firm's ability to meet its account payable obligations on time.
- Retained Earnings/Total Assets (X2): A higher ratio indicates growth is achieved by increasing financing from profits, while a low ratio suggests growth may not be sustainable if financed from increasing debts and not rein-vesting profits.
- Earnings before Interest and Taxes/Total Assets (X3): This ratio measures operating efficiency (all profits before taking into account interest payments and in-come taxes). It assumes operating earnings as one of the important parameters for long-term viability of the firm.
- Market Value of Shares/Total Liabilities (X4): This ratio assesses a company's long-term solvency, or how much its market value would drop in the event that liabilities exceeded assets.

- Sales/Total Assets (X5): This ratio, which is often referred to as the assets turnover ratio, calculates how much revenue a company makes from its assets. The higher the ratio, the better, as it focuses on the assets and management's ability to generate sales. Put another way, a low ratio would suggest that the company's overall assets (as well as its management) are inefficient in generating more profits (Kumar & Anand, 2013)

According to this model, companies were classified into three categories according to their financial health, as follows:

Table (1). Classification of Companies According to their Financial Health According to the Z -score Model

Category	Z-score	Condition
First category	1.8 or less	Financial Health is Low
Second category	1.8-2.99	Financially Healthy
Third category	3.0 or more	Financial Health is High

Measuring Market Value Added (MVA)

Market value added is a useful metric for evaluating the financial performance and value creation of a company. By monitoring and enhancing MVA, companies can demonstrate their ability to generate returns for shareholders and strengthen their financial health in the market.

The company's market value added (MVA) can be calculated based on the following equation (Akgun et al, 2018) (nakhaei, 2016):

$$MVA=MVE-BE$$

In which:

- The market value added MVA = Market value of company shares - invested capital.
- The market value of the company's shares MVE= (Market price of the share) x (Number of shares).
- Invested capital BE= Equity + Long-term Liabilities.

According to this equation, a positive value means that the company has added value to the invested capital, while a negative value means that the company has failed to add value to shareholders' wealth.

The Research Samples

The research sample included a group of companies listed within the industrial sector on the Amman Stock Exchange for the period from (2013-2021), which are as listed in the table below:

Table 2: Research Sample Companies

N	Company	Symbol	Activity	Year of founding	Year of listing on the stock exchange
1	Arab Potash Company	APOT	Operates in the materials sector and focuses on diversified chemicals.	1956	2003
2	Jordan Pipes	JOPI	Operates in the steel sector focusing on materials.	1969	2003
3	National Aluminum Industries	NATA	Operates in the materials sector focusing on aluminum and consumer service in the field of capital goods and aluminum.	1994	2003
4	Nutridar	NDAR	Operates in the food, beverage and tobacco sector, focusing on agricultural products.	1994	2011
5	Dar AL Dawa Development &Inv	DADI	Operates in the pharmaceutical, biotechnology and life sciences sectors with a focus on biotechnology	1975	2011
6	Gulf Cables & Electrical Industries Group Co	CABLE	Operates in the capital goods sector focusing on electrical components and equipment.	1975	1984
7	Jordanian Vegetable Oil Industries	JVOI	Operates in the food, beverage and tobacco sector and focuses on agricultural products.	1953	2007
8	Jordan Steel	JOST	Operates in the steel sector with a focus on materials besides capital goods and materials.	1993	2003

RESULTS AND ANALYSIS

Measuring the Financial Health of the Sample Companies

Based on the Z-score model, the financial health of the companies in the research sample was assessed as follows and results are listed in table (3) below:

$Z=1.2x1+1.4x2+3.3x3+0.6x4+1.0x5$

Whereas:

X^1: Working Capital/Total Assets

X^2: Retained Earnings /Total Assets

X^3: Net Profit before Interest and Taxes/Total Assets

X^4: Market Value of Shares/Total Liabilities

X^5: Sales/Total Assets

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Table 3: Z-score Results for the Companies in the Research Sample

	Companies	2013	2014	2015	2016	2017	2018	2019	2020	2021	Mean
1	(APOT)	14.0718	8.1842	6.681471	6.222384	5.82419	5.208428	4.996008	5.005802	4.818987	6.7792
2	(JOPI)	3.671362	2.119285	1.502606	1.498821	1.278857	1.543645	0.341819	-0.21213	0.195403	1.3266
3	(NATA)	2.215573	1.972971	1.990823	2.285589	1.663298	1.636853	1.648841	3.093012	3.344084	2.2056
4	(NDAR)	0.776227	1.281038	1.424029	2.71917	1.869254	1.110537	2.63078	2.541994	3.188720	1.9490
5	(DADI)	1.630029	2.431634	2.24202	2.047081	0.910734	0.28436	0.196595	1.192630	1.155352	1.3433
6	(CABLE)	2.308221	2.140641	2.197360	2.457818	1.958566	1.48511	1.853852	2.104880	2.081122	2.0652
7	(JVOI)	2.896985	5.048957	6.235531	5.08504	5.106416	5.578748	7.802332	7.447912	7.184523	5.8207
8	(JOST)	1.886	1.620	1.348	0.8051	0.7527	0.6484	-0.3622	-0.3640	-0.2328	0.678

It is clear from Table 3 above that the company with the highest financial health is APOT, where its highest ratio was reached in 2013 with a score of 14.07183728. The reason for this is the higher ratio of the market value of shares to total liabilities in this year than in other years. To a large extent, the average during the years of study reached 6.77926. Followed by the JVOI company with an average of 5.820717 and its highest value in 2019 with a score of 7.802332588, as a result of the significant increase in the ratio of working capital to total assets. As for the company that achieved the lowest financial health score, it is the JOST company with an average of 0.678079, where it was The company's financial health scores in the last three years have been negative, and the reason for this is the continuous decline in this company's share prices and an increase in the debt ratio, which greatly affected the ratio of the market value of shares to total liabilities. Followed by JOPI Company, with an average score of 1.326629, and the lowest score was in the year 2020 with a score of -0.212137944. The reason is the significant decrease in the ratio of retained earnings to total assets, which affected the financial health of the company.

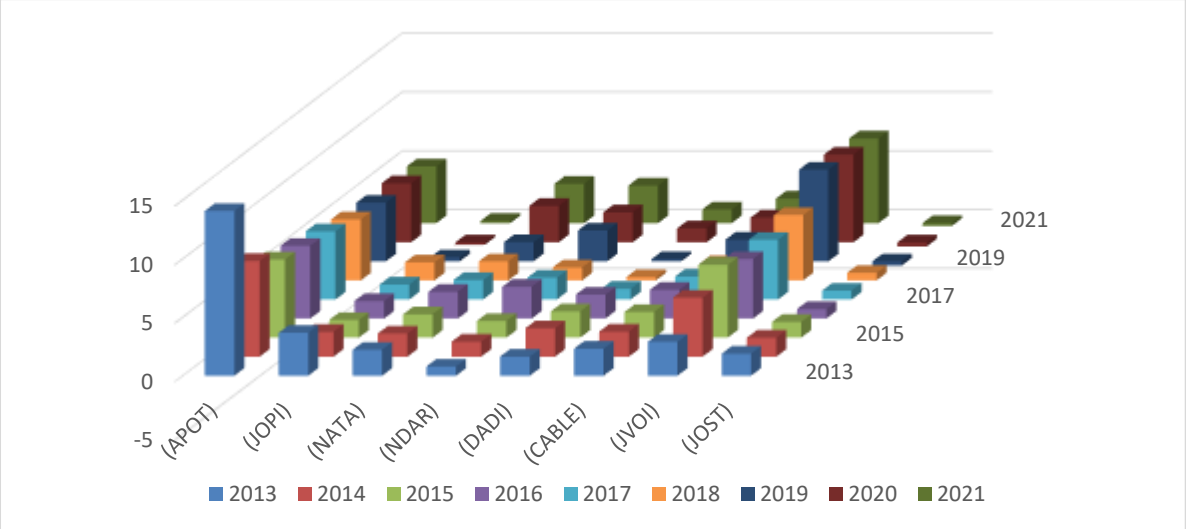

Figure 4: The Financial Health of the Research Sample Companies

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Table 4: Classification of the Sample Companies According to the Z- Score Model for Financial Health

Category	Company	Average Z-score	Financial health
Third category 3.0 or more	(APOT)	6.779262 > 3.0	High Financial Health
	(JVOI)	5.820717 > 3.0	
Second category 1.8-2.99	(NATA)	2.99 > 2.205672 > 1.8	Moderate Financial Health
	(NDAR)	2.99 > 1.949084 > 1.8	
	(CABLE)	2.99 > 2.065286 > 1.8	
First category 1.8 or less	(JOPI)	1.8 > 1.326629	Lacks Financial Health
	(DADI)	1.8 > 1.343383	
	(JOST)	1.8 > 0.678079	

As shown in Table (4) , companies are classified into three categories according to their degree of financial health based on the Z-score model. The first category, which included (APOT) and (JVOI) is the category of companies with the highest financial health scores, given that their average financial health score was higher than (3.0). The second category, which includes (NATA), (NDAR), and (CABLE), is the category of companies with moderate financial health, for which the average degree of financial health during the period of the study ranged between (1.8) and (2.99). The third category, which included (JOPI) , (DADI), and (JOST) is the category of companies that lack financial health, and their average degree of financial health during the period of the study was less than (1.8).

Measuring the Market Value Added

Measurement and analysis of the market value added of the companies in the research sample for the period (2103-2021), is represented in Table (5).

Table 5: The Market Value Added of the Firms in the Research Sample

Companies	2013	2014	2015	2016	2017	2018	2019	2020	2021	Mean
(APOT)	1436315900	754528000	848111000	731471240	518375300	407368360	734183100	743157000	1051695960	802800651.1
(JOPI)	255284	-926181	-1963603	-2293640	-2224159	3584028	-602807	-519347	405286	-476126.556
(NATA)	-4485010	-5330976	-6103338	-6371933	-6825171	-7861895	-6972754	-2099141	-2146177	-5355155
(NDAR)	18326902	13610618	10683927	22589098	16278327	12250239	26801452	27668393	32429716	20070963.56
(DADI)	-13177996	20676308	-592218	-14065919	-8209384	-17884673	-8244137	-12928970	-7391013	-6868666.89
(CABLE)	-14628405	-17061599	-23356955	-26446254	-27147012	-24031437	-21109103	-23811720	-22146357	-22193204.7
(JVOI)	-1460055	-977792	1125511	1061081	636146	974430	4405059	4833236	4751802	1705490.889
(JOST)	3129244	-18286884	-23761104	-27663874	-19943182	-21194521	-18131829	-30604795	-24687227	-20127130.2

A computation known as market value added, or MVA, illustrates the discrepancy between a company's market value and the total capital given by all participants, including bondholders and shareholders. Stated differently, it represents the market value of the company's debt and equity less any capital claims that are owed to it. It is computed as follows:

MVA=MVE-BE

where MVA stands for the company's market value added, MVE for the company's market value (which includes the enterprise value of the company's debt and equity), and BE for the total amount of capital spent in the company.

From the perspective of the shareholders, MVA <0 denotes investment losses and MVA > 0 represents profits. The MVA is positive if the business uses the invested money to create more value.

It is clear from table (5) above that the highest positive market value added was for (APOT), with an average of (802800651.1), and that the highest value for this company was (1436315900) in (2013) followed by (NDAR) with an average of (20070963.56) and highest value of (32429716) in (2021).

Note that these two companies did not achieve any negative market value during the study periods, meaning that they are the best companies in terms of the market value added to shareholders. They are followed by (JVOI) company with an average market value Added of (1,705,490,889), but with a negative market value of (-1,460,055) and (-977,792) in (2013) and (2014), respectively, which affected the company's overall average. The companies that did not achieve any positive market value added during the years of the study were (CABLE) and (NATA). Thus , the research sample companies can be divided into two categories. The first category is the companies that achieved a positive market value added and the second is the companies that achieved a negative market value added, as in the table below.

Table 6: Companies with Positive and Negative Average Market Value Added

Companies with negative MVA	Companies with positive MVA
(JOPI)	**(APOT)**
(NATA)	**(NDAR)**
(DADI)	**(JVOI)**
(CABLE)	
(JOST)	

Measuring and Analyzing the Relationship between Financial Health and the Market Value Added of Companies

The primary goal of any company is to achieve the highest return with the lowest degree of risk, which leads to achieving the most important goal of maximizing profitability and growth. These goals cannot be achieved unless the company enjoys financial health resulting from the financial stability of inflow and outflow of funds to and from the company and its ability to recover from shocks. This preserves the rights of shareholders in the company and increases its value in the financial market as a market value added Therefore, the relationship between the financial health of the company and its market value added can be analyzed by applying it to the sample of companies selected from the industrial sector on the Amman Stock Exchange for the period (2013-2021).

Table 7: Correlation Coefficient between (Financial Health and Market Value Added) for the Companies

Correlation coefficient	Companies
0.741416886	(APOT)
0.055470753	(JOPI)
0.942523088	(NATA)
0.855344729	(NDAR)
0.586386987	(DADI)
0.184844251	(CABLE)
0.919839573	(JVOI)
0.597587964	(JOST)

The table above indicates the correlation coefficients between the two variables (financial health and market value added) for each of the companies in the research sample, as it turns out that the correlation coefficients indicate positive relationships between the two variables. The correlation coefficient between the two variables in the companies (APOT) and (NDAR) appeared at a value of (0.741416886) and (0.855344729), respectively, which indicates the presence of a significant positive relationship. As for the companies (NATA) and (JVOI), the correlation coefficients reached (0.942523088) and (0.919839573), respectively. This indicates

a strong, significant positive relationship with a significance close to (1), meaning that the greater the financial health, the higher the market value added. While the correlation coefficients between the two variables appeared at (0.5) in the companies (JOST) and (DADI), which is also a positive relationship with significance but not as strong, the correlation coefficient in the (JOPI) company appeared to be (0.055470753), which is a weak value. A company that achieves sustainable profits and effectively uses its available assets has a positive impact on its value.

There is a correlation between a company's financial health and market value added. Strong financial standing increases a company's likelihood of growth, better cash flows, and higher profitability, all of which raise the market value of the business. It is critical to consider other factors, such as investor sentiment and external market conditions, that could influence market value added.

Conclusion

The financial health of a company reflects the ability to achieve profits and growth in the long term, and is considered a major factor in determining the value of the company in the market. There are several indicators and standards used to evaluate the financial health of companies. A company that achieves sustainable profits and effectively uses is available assets shows a positive impact on its value. Also, a company that is able to meet its short-term financial obligations is more able to bear financial risks and achieve growth, and the company's possession of a stable and balanced capital structure may have a positive impact on its market value .A company with strong financial health, growing profits, and commitment to effective capital management is more likely to be evaluated favorably by investors and thus increase its market value added. Conversely, if a company is experiencing financial problems, such as high debt or declining profits, this may reduce confidence in the company and reduce its market value.

Value Additive Market value added, or MVA, is the difference between the present total market value of a firm and the capital given by investors, which includes bondholders as well as shareholders. MVA is not a performance metric like EVA; rather, it is a wealth metric that evaluates the total value a company has accumulated over time. if the MVA value is positive or more than zero, indicating that it has been successful in adding value through the growth of the market capitalization value of the issued shares.

However, it should be noted that the relationship between financial health and MVA may be complex and influenced by other factors as well, such as general economic factors, investor expectations and market developments. The general evaluation of the industry sector or technical analysis may also affect its market value. Besides, we note that the market value of companies may also be affected by non-financial factors, such as expectations, sentiments and psychological factors of investors. Investors' evaluation of a company may be affected by negative or positive news, future expectations, and rapid changes in the economic and political landscape.

In general, a company's market value and financial health are complex topics that depend on a wide range of interrelated elements. When assessing businesses and making investment decisions, analysts and investors need to take all of these aspects into account. As a result, in addition to market and industry analysis, organizations need to be thoroughly assessed, utilizing a range of financial indicators and other variables pertaining to market value added.

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Data Availability Statement

The data of companies' financial statements is available through the websites of the companies in the research sample

Conflicts of Interest

The authors declare no conflict of interest.

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