The Impact of Financial Leverage on the Profitability of Industrial Companies In Light of the Corona Pandemic, Evidence from Emerging Economies

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Abstract: - The present study figures out the impact degree of financial leverage, measured by the ratio of liabilities to equity, on the profitability of industrial companies in light of the Corona pandemic, measured by the ratios of the return on equity and return on assets, the study population consisted of industrial companies listed in the Amman Stock Exchange amounting to (55) companies while the study sample consist of (39) companies that have data available during the study period, The descriptive analytical approach used in this study, the statistical program (SPSS) was used to analyze the study data, the mean and standard deviation were used to describe the study data, and simple regression analysis was used to test its hypotheses, the study found that there is no statistically significant impact of the degree of financial leverage on the profitability of the industrial companies listed in the Amman Stock Exchange (ASE) as measured by the return on assets, while there is a statistically significant impact to the degree of financial leverage on the profitability of the Jordanian industrial companies listed in the Amman Stock Exchange (ASE) as measured by the return on equity.
The study recommended that the Jordanian industrial companies have to find an optimal capital structure; besides studying the investment opportunities before borrowing to finance them and relying on self-financing sources in the first place.

Key-Words: - financial leverage degree, profitability, return on equity, return on assets, Corona pandemic, capital structure, Jordanian industrial companies.

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1 Research Background and Importance

1.1 Introduction

The main goal for management in the business sector is profit maximizing, either by increasing their revenues reducing their costs, or both, one of the important cost items is the finance costs in companies generally and in industrial companies specifically due to their great need to finance their capital investments and operational expenses, companies management are responsible for achieving the objective of profit maximizing by investing in long term assets and current assets, and they have to compare between internal financing sources (equity) and external financing sources short and long term borrowing to reach the best capital structure) [1], the study of [2], indicated that the financing decision considered one of the most important decisions for public shareholding companies, in addition, improper selection of the capital structure can lead to an increase in the cost of capital, and this leads to a decrease in the net present value of projects, which makes them unacceptable, [3]. Financing by borrowing is called financial leverage, which is defined as borrowing or using financial instruments that they affect the profits or losses of the investor often, and it is expressed as a percentage in one of the recognized debt ratios, [4], at the beginning of the year (2020) the Corona virus pandemic(COVID-19) formed is a severe economic shock to all countries, Jordan was not immune from this pandemic, and in light of the Corona pandemic, many industrial companies that had existing financial obligations in the form of loans were forced to resort to debt to finance their investments and provide the necessary liquidity to conduct their business, which may affect their profitability because of Loans with fixed costs and the pandemic consequent closures that have caused a decrease in demand for many of these companies products, and thus a decrease in their revenues.

The present study aims to identify the impact of the degree of financial leverage on the profitability of industrial companies in Jordan in light of the Corona pandemic.

1.2 Study Problem

Leverage ratios are considered a double-edged sword, On the one hand, they increase investment risks, however, if they are properly used, they work to achieve additional returns and tax savings for the company, and thus increase the profits of the company and the returns of investors. [5], and some studies such as, [6], studied the impact of the degree of financial leverage on the profitability of borrowing companies in normal circumstances.

This study aimed to investigate the effect of financial leverage on an industrial company's profitability by answering the following question:

Does the degree of financial leverage impact the profitability of the Jordanian industrial companies listed on the Amman Stock Exchange in light of the coronavirus pandemic?

The following two sub-questions are derived from the main question:

The first sub-question: Is there an impact of the degree of financial leverage on the return on assets (ROA) in the Jordanian industrial companies listed on the Amman Stock Exchange in light of the coronavirus pandemic?

The second sub-question: Is there an impact of the degree of financial leverage on the return on equity (ROE) in the Jordanian industrial companies listed on the Amman Stock Exchange in light of the coronavirus pandemic?

1.3 Study Objective

The study's objective is to identify the impact of the degree of financial leverage on the profitability of the industrial companies listed in the Amman Stock Exchange measured by the return on assets (ROA) and the return on equity (ROE) in light of the spread of the Corona pandemic.

1.4 The Importance of the Study

The significance of the study lies, practically, in providing new insights into the extent to which financial leverage affects profitability in industrial companies, especially during abnormal economic circumstances such as the COVID-19 pandemic. It assists decision-makers in industrial companies by providing information on the impact of financial leverage on the industrial companies' profitability. Scientifically, the study's importance arises from its focus on a topic of great importance to industrial companies, given the intense competition locally and internationally in securing financing through borrowing. The study reveals the extent to which financial leverage achieves the expected results in the study population. The increased reliance on borrowing without efficiency in investing borrowed funds can lead to unrealized expected benefits from financial leverage and expose the companies to financial risks if the cost of these funds exceeds the expected return of investing them. Additionally, this study, along with similar studies, contributes to providing a scientific reference in the field of research related to financial leverage and its impact on the profitability of industrial companies. This study distinguished itself from other studies by examining the impact of financial leverage on the profitability of industrial companies listed in the Amman stock exchange during abnormal conditions, namely the COVID-19 pandemic. This adds a new dimension in evaluating the expected impact of financial leverage, considering macro factors such as political and economic conditions during the period from the borrowing date until the settlement date.

1.5 The Study Hypothesis

The study included the following hypothesis

The main hypothesis HO: There is no statistically significant impact of the degree of financial leverage on the profitability of the Jordanian industrial companies listed on the Amman Stock Exchange in light of the spread of the Corona pandemic.

The following sub-hypotheses emerge from the main hypothesis:

H01: There is no statistically significant impact at the level of statistical significance ($0.05 \geq \alpha$) for the degree of financial leverage on the return on assets (ROA) in the Jordanian industrial companies listed on the Amman Stock Exchange in light of the spread of the Corona pandemic.

H01: There is no statistically significant impact at the level of ($0.05 \geq \alpha$) of the degree of financial leverage on the return on equity (ROE) in the Jordanian industrial companies listed on the Amman Stock Exchange in light of the spread of the Corona pand.

1.6 Study Terms

Financial leverage: Borrowing the necessary funds to finance the company's activities, and it is measured by the ratio of liabilities to equity in the company's capital structure, [6].

Profitability: The positive difference between total revenues and total expenditures, the case in which revenues exceed expenses, and profitability can be defined as the ability to increase and maximize profits, [7].

Return on Assets (ROA): One of the profitability indicators measures management's efficiency in using assets to generate profits and is calculated by dividing the net profit by the total assets, [8].

Return on Equity (ROE): One of the profitability indicators measures the efficiency of the company's management in exploiting the shareholders' money and is calculated by dividing the net profit after tax on equity, [5].

1.7 Study Limits

Spatial limits: The present study is limited to the industrial companies listed on the Amman Stock Exchange during the period of validity of a pandemic, which is the years 2020-2021.

Temporal limits: The present study was completed during the first half of 2023.

1.8 Study Limitations

The short period of the Corona pandemic (2020-2021) limits the financial data on the performance of Jordanian industrial companies required for the study.

2 Theoretical framework

2.1 The Concept of Financial Leverage

One of the important strategic decisions of the management is to determine the financing mix or the capital structure, due to its impact on corporate profitability and risks over time, therefore, it plays a major and important role in influencing the value of the company, [8], leverage is a resort to external financing sources to finance businesses activities, it is measured by the ratio of debt to equity in the capital structure of, so that the debts include all the obligations of the entity, equity include all items of equity in the entity as well, [6], companies' justifications for resorting to borrowing vary between the lack of cash flows needed to meet debts, the need to finance investment, and to increase the expected return that is measured as net income, or to maintain the control of the current owners over the company's management, [9], but at the same time that financial leverage is expected to achieve the above advantages, it also entails an increase in the company's risks due to the use of fixed-cost financing, [10]).

The degree of financial leverage is an indicator of the level of financial risk of the company. It also reflects the effect of borrowing on the earnings per share before interest and taxes, [11]. Financial leverage is a double-edged sword in all cases, it can achieve the best results when the company works operationally and financially in an efficient way and it might lead to counterproductive if all goes wrong.

Long-term loans are considered one of the most important sources of financing for companies, especially large ones, due to the possibility of obtaining them in large amounts It is also possible to schedule their repayment according to the expected cash flows of the borrowing company, and the company must take into account the distribution of its assets between current and non-current when borrowing, and to choose between the sources of obtaining short-term and long-term financing in terms of cost and reliability, [6].

2.2 Profitability

The concept of profitability refers to the relationship between the profits achieved by the company and the investments that contribute to achieving the profit of the company, profitability can be measured by the ratio of the income to the revenues achieved from it or its ratio to the investments that were used to achieve it, [12], profitability result from two types of decisions investment and financing decisions, [13] and the finance sources differ in terms of the speed of obtaining it, as retained earnings are considered the first of these sources, then borrowing and then the issuance of new shares, in companies that are characterized by high profit rates that enable them to retain part of them as an internal source of financing, [14], it is expected that the relationship between the debt ratio and profitability will be positive relationship in companies that have a high-return investment environment, and vice versa in companies that do not have an investment environment with attractive returns. Profitability is considered the main indicator for evaluating the financial performance of companies by stakeholders who aim to raise the value of the shares, and the creditor cares about profitability to ensure the collection of interest and the principal of their loans, as for the management, however, it seeks to achieve goals for both the creditor and the owner; this also benefits the management itself since profitability indicates the management's success in managing the company's assets, [15]. profitability ratios are also used as evidence of the company's ability to generate profits from operating activities compared to expenses and costs and of the efficiency of management in using the firms' resources efficiently, [16].

There are many indicators for profitability, and each of them serves specific purpose ; the gross profit margin reflects the relationship between sales and the cost of these sales, and the profit margin before interest and taxes measures the volume of operating profit before interest and taxes for each sales monetary unit, the net profit margin is a general measure of management efficiency in production, selling, and financing activities, the return on equity measures the return on each monetary unit invested by the owners, and the return on assets expresses the profit resulting from the investment of each monetary unit in assets, [17].

2.3 The Relationship between Financial Leverage and Profitability

Financial leverage, or equity trading as it is sometimes called, refers to the extent of the borrower's ability to achieve an increase in the return on equity through borrowing and directly affects the capital structure of the company and thus reduces the company's ability to pay its financial obligations for others, it may also require the company to reduce its expenses, especially in the field of research and development, which may affect negatively on the competitive position of the company and its production efficiency in the future, [6].

Financial leverage represents the change that occurs in return available to the owners, that is, the net profit after tax or the earnings per share as a result of a certain change in the net profit before interest and taxes, as the financial leverage arises from the presence of fixed financial costs represented in the interests of loans and preferred stock dividends, and with the stability of other factors as they are, and the degree of financial leverage increases whenever the fixed financing costs increase, which means a change at a certain rate in net profit before interest and taxes entails a greater change in the net profit after tax and interest that represent the net profit available to the owners or the earnings per share, [18].

The study of [19], dealt with the impact of financial leverage on the profitability of Saudi transport sector companies, the study used three indicators to measure financial leverage (total assets to equity, total debt to total assets, and long-term debt to equity) as independent variables and return on assets as a dependent variable, and found a statistically significant relationship between financial leverage and profitability in Saudi transport companies, and recommended paying attention to the use of financial indicators because of their advantages in evaluating and the company's financial conditions, while, [5], study examine the relationship between financial leverage and financial performance in telecommunications companies in the Kingdom of Saudi Arabia, It concluded that financial leverage negatively affects financial performance, and that there is a strong negative correlation between financial performance and financial leverage and it recommended the need for Saudi companies to study and evaluate their financing structure in order to reach the best ratio of financial leverage in order to achieve a positive impact of financial leverage on their financial performance, [20], study examined the impact of financial leverage on the return on equity and the overall risks industrial companies in Egypt, and it found a positive and significant effect of the degree of operational leverage and the degree of financial leverage on the return on equity and the total risks of industrial companies, while found negative and significant effect of the degree of financial leverage and the financing mix in the long term on the return on assets of industrial companies, [6], study looked at the impact of financial leverage on financial performance expressed as both the return on equity and the return on the assets in the Jordanian public shareholding companies listed in the Amman Stock Exchange and concluded that there is an effect of financial leverage on the return on assets also the absence of an effect of financial leverage on the return on equity among the different sectors, and it also concluded that there is no effect of financial leverage on the return on assets between the different sectors, and recommended companies to search for factors that could have an impact on the return on assets, [10], studied the effect of financial leverage on financial performance in Jordanian commercial banks during the period (2000-2016), and it concluded that there is a significant effect of financial leverage on the rate of return on assets, and the presence of a negative and significant effect of the financial leverage on the return of the ordinary share, and the existence of a positive and significant effect of financial leverage on the market value of the share in commercial banks.

[9], studied the effect of return on assets, financial leverage, on return on shareholders' equity in light of the application of ABC the costing system, and conditions of financial instability, and it

is a case study for Jordan Steel Company and its subsidiaries (2003 – 2013) the study used a multiple regression model, It found that there is statistically significant effect for the global financial crisis on the return on equity, it recommended that the company should maintain a positive and harmonious relationship between the return on assets and reduce the debt ratio due to the negative impact of financial leverage on financial performance.

[21], study examined the effect of financial leverage on the return on investment for Kuwaiti public shareholding companies listed on the Kuwait Stock Exchange during the period (2009-2011), the study used the simple regression analysis test, the analysis of variance test (ANOVA), the Scheffee test, and concluded that there is a statistically significant positive relationship between the financial leverage ratio and the return on investment ratio, the study recommended that Kuwaiti public shareholding companies should search for the optimal capital structure that help them achieves the desired goal of financial leverage.

[22], studied the impact of financial leverage on financial performance and stock risks; financial leverage was measured by the ratio of liabilities to equity, and the ratio of indebtedness, return on equity and earnings per share were used as dimensions of financial performance, it concluded that there is a positive impact of financial leverage measured through the ratio of liabilities to equity on each of the financial performances, and the presence of a negative effect of financial leverage measured the ratio of indebtedness on financial performance measured by the return on equity, and the presence of a positive impact of financial leverage measured by the indebtedness ratio on share market risks, and the study recommended conducting more studies on the impact of financial leverage on profitability using other financial ratios, [23], studied the impact of capital structure on financial performance, using the ratio of liabilities to equity as an indicator of capital structure or financial leverage, and each of the return on equity ratio, earnings per share, return on assets as indicators of performance financial, the study concluded that there is a positive impact of the capital structure on the financial performance, and recommended that companies should use the optimal financing capital structure because of its positive impact on the financial performance of companies, [24], discussed the effect of capital structure, the company size and liquidity listed on the Nairobi Stock Exchange and found the existence of a statistically significant negative relationship between financial leverage and financial performance, and the existence of a positive relationship between each of the company's size and liquidity separately and financial performance, the study recommended that the companies should use the minimum level of debt or determine the optimal level of debt that should be used, [25], study discuss the relationship between financial leverage and financial performance of banks in Nigeria, It tested the impact of the ratio of debt to equity on the ratio of return on equity in Nigerian banks, it concluded that there is a statistically significant relationship between the ratio of debt to equity and financial performance measured by return on equity, the study result showed that there is no statistically significant relationship between the debt ratio and financial performance, It recommended that there is a need for banks to adopt a level of financial leverage that enhances the banks performance.

[26], examined the hypothesized effect of financial leverage on the value of companies, where the financial leverage was measured by the ratio of long-term debt to total capital and the ratio of total debt to total capital; the study used the percentage of sales growth, the size of the company, and the structure of assets as control variables and found that there is a negative effect of the level of financial leverage on the value of companies registered in the Amman Stock Exchange included in the study sample.

It is observed from reviewing previous studies that have addressed the study subject that they fall into two main groups. The first found a positive effect of financial leverage on profitability, including studies of [6], [9], [22], [26], and finally, the study of [23]. The second group found a negative impact of financial leverage on a company’s profitability, such as studies of [25] and [10]. Some studies have also examined the impact of financial leverage on profitability and other aspects. For instance, the study of [20], discussed the effect of financial leverage on Return on Assets, Earnings per Share, and Market Value of Shares. It concluded that there is a negative impact of financial leverage on Return on Assets and Earnings per Share, but a positive impact on the Market Value of Shares. The study of [5], examined the effect of financial leverage on profitability measured by return on equity, Return on Assets, and the overall risks of the company, finding a positive impact on return on equity and a negative impact on Return on Assets and the overall risks of the companies.

3 Methods and Procedures

3.1 The Study Methodology

The descriptive-analytical method was used in conducting the study, which is considere d the most suitable method for the nature of the study. Reviewing previous studies on the study subject and their findings were used to define the theoretical framework of the study and construct its model. Data for the study was collected from the financial statements of companies representing the study's sample. The Statistical Package for Social Sciences (SPSS) was utilized for data analysis. Descriptive measures such as the mean and standard deviation were used to describe the study's data. To test the study's hypotheses, simple regression analysis was employed to examine the impact of the independent variable (financial leverage) on the dependent variable (profitability) in terms of Return on Assets and Return on Equity.

3.2 The Study Population and Sample

the study population consists of the industrial companies listed on the Securities Depositary center, which is (55) companies according to the data published on website of the Securities Depositary Centre, [27], as for the study sample, consisted of all industrial companies for which the study data were available for the entire period of the study that are (39) companies. Thus, the study sample represents 71% of the industrial companies listed in the Securities Depositary Centre.

3.3 The Statistical Methods used in the Study

The study used descriptive statistical measures such as the mean, and standard deviation to describe the data and the simple regression analysis to test the study's hypotheses.

4 Statistical Analysis and Hypothesis Testing

This chapter analyzes the data descriptively to identify the descriptive characteristics of the study data such as the mean and standard deviation and inferentially to test the study's hypotheses.

4.1 Descriptive Analysis

The study data were analyzed to find the main descriptive statistics indicators that are shown in Table 1.

Table 1 shows the descriptive statistics indicators' values that describe the industrial companies' performance in the Amman Stock Exchange, by reviewing the table data related to the financial leverage variable, which represents the independent variable, it is clear that the lowest value of this variable amounted to (0.02), and the largest value is (99.83). The mean set of values for this variable is (15.54 ± 25.56). Concerning the data of the return on equity variable, it is found that the lowest value for this variable is (-17.30), while the largest is (20.91), and the value of the mean for this variable is (2.44 ± 7.13); as for the return on assets variable, it is noted that the lowest value (-11.29), while the largest value for it is (14.14), the mean set of values for this variable is (1.20 ± 4.77).

The table also shows the values of two important indicators of descriptive statistics, namely the torsion coefficient and the flattening coefficient, which describe the shape of the distribution of data for each of the study variables and how close the behavior of this data is to the default natural data behavior, as the torsion coefficient describes the tail of the curve of the data in terms of its warp the results of this indicator, which indicate that the degree of torsion is close to the normal distribution, are accepted if the torsion coefficient falls within the range (-3 to +3), in the case of using raw data in estimating and calculating the value of this indicator, it is noted from the table that the values of the torsion coefficient for the three variables fall within the acceptable range, and this indicates that the data is characterized by a normal distribution of the three variables its simplicity so that the best values for this indicator are assumed not to exceed the limit (8) and by reviewing the data for this indicator contained in the table above, it is noted that the values of this indicator ranged between (1.72-0.56) for the three variables and all of them fall within the natural limits of this indicator, and therefore it is concluded that the distribution of the data of the three variables approximates the normal distribution, and in the same context, the values of the flattening coefficient ranged between (2.03-1.17) for the three variables.

The above descriptive analysis results showed that the data is fulfilling the normal distribution condition so the linear regression analysis can be used to test the study hypotheses.

Table 1. Descriptive statistics for the study data variables

Variables	Views No.	lowest value	biggest value	Mean	standard deviation	torsion modulus	Flattening coefficient
Financial Leverage degree (Liability/Equity)%	78	0.02	99.83	15.54	25.56	1.72	2.03
ROE% return on equity	78	-17.30	20.91	2.44	7.13	0.62	0.87
ROA% return on assets	78	-11.29	14.14	1.20	4.77	0.56	1.17

Table 2. The results of the simple linear regression analysis impact on the degree of financial leverage on the return on assets (ROA) in Jordanian industrial companies

the independent variable	R	R^2	R^2 modified	F	Sig f
The degree of financial leverage	0.083	0.007	0.006	0.539	0.465*

(*) indicate there is no statistically significant effect

Table 3. The impact of the degree of financial leverage on the return on assets (ROA)

the independent variable	B	SE	β	T	Sig t	Constant
The degree of financial leverage	.385	.524	.083	.734	.465	1.097

Table 4. The results of the simple linear regression analysis of the effect of the degree of financial leverage on the return on equity (ROE)

the independent variable	R	R^2	R^2 modified	F	Sig f
The degree of financial leverage	0.231	0.054	0.041	4.296	0.042*

Table 5. Values of the impact of the degree of financial leverage variable on the return on equity variable

the independent variable	B	SE	B	T	Sig t	constant
The degree of financial leverage	1.616	.780	.231	2.073	.042	2.052

(*) indicates that there is a statistically significant impact.

4.2 Study Hypotheses Testing

This section of the study addresses the testing of its hypotheses using simple regression analysis. After confirming that the study's data approximates a normal distribution, thus validating the use of simple regression analysis to test the study's hypotheses, based on the results of testing the subsidiary hypotheses, a judgment was made on accepting or rejecting the main hypothesis. Below is a presentation of the results of the subsidiary hypotheses and their implications for the main hypothesis of the study.

Main hypothesis H0: There is no significant impact of the degree of financial leverage on the profitability of the Jordanian industrial companies listed in the Amman stock exchange in light of the Corona pandemic, two sub-hypothesis are derived from the main hypothesis, the result of testing the first sub hypothesis support the main hypothesis while the result of testing the second sub hypothesis was contradicted it, thus, it can be said that this hypothesis is partially accepted, and the following are the results of testing the two sub-hypothesis:

First sub-hypothesis:

H01: There is no statistically significant impact at the level of statistical significance (0.05 ≥ α) for the degree of financial leverage on the return on assets (ROA) in the Jordanian industrial companies listed in the Amman Stock Exchange in light of the Corona pandemic.

In the Table 2 are the results of this hypothesis's simple linear regression analysis. The results in Table 2 indicate that the value of the determination coefficient for the regression model that examines the impact of the degree of financial leverage on the return assets (ROA) shows that there is a statistically significant effect of the degree of financial leverage on the return assets (ROA), which amounted to (R^2) (0.007). The table shows that the calculated value of (f) is (0.539), this amount is considered insignificant because the significant level is (0.465) is higher than (0.05).

Table 3 shows the value and nature of the impact of the degree of financial leverage on the return on assets in industrial companies during the Corona pandemic.

The Table 3 shows the value of the coefficient β, which reflects the impact of the variable of the degree of financial leverage on the variable return on assets (ROA) is (0.083), and the test significance level is (0.465) which greater than (0.05) **this means that there is no statistically significant impact of the degree of financial leverage on return on assets (ROA).**

Accordingly, the null hypothesis of the first sub hypothesis is accepted, and the alternative one is rejected, **which means there is no impact of the degree of financial leverage on the return on assets (ROA) in the industrial companies listed in the Amman stock exchange during the coronavirus pandemic**.

The second sub-hypothesis:

H02: **There is no statistically significant impact at the level of statistical significance (0.05 ≥ α) of the degree of financial leverage on the return on equity (ROE) in the Jordanian industrial companies listed on the Amman Stock Exchange in light of the spread of the Corona pandemic**.

Table 4 shows the results of this hypothesis's simple linear regression analysis. The results in Table 4 indicates that the value of the determination coefficient for the regression model that examines the effect of the degree of financial leverage on the value of return on equity (ROE) indicates that there is a statistically significant impact of the degree of financial leverage on the return on equity (ROE)), where the value of the determination coefficient (R^2) was (0.054) and the (f) calculated value is (4.296) and this amount consider statistically significant because the significant level for calculated (f) is(0.042) which is less than (0.05).

Table 5 is the value and nature of the impact of the variable of the degree of financial leverage on the return on equity. Table 5, revealed the value of the β coefficient, which reflects the effect of the degree of financial leverage on the return on equity variable, as the value of this impact was (0.231); the t-test value also shows that the statistically significant linear significance of the coefficient (β) that was reached, and since the value of the test significance level of (0.042) was less than 0.05, **this means that there is a statistically significant impact of the degree of financial leverage on the return on equity.**

Based on the above result, the null of the second sub-hypothesis of the study is rejected, and the alternative one is accepted.

5 Results and Recommendations

5.1 Results

The study found the following results. The study aimed to identify the impact of financial leverage on profitability, measured by both Return on Assets (ROA) and Return on Equity (ROE), in the industrial companies listed on the Amman Stock Exchange in Jordan. For this purpose, the research problem was formulated as a main question, two sub-questions were derived from the main question. To answer these questions, a main hypothesis was formulated, from which two sub-hypotheses also emerged. The following presents the results of testing the study hypotheses and answers to its questions:

1 .Impact of financial leverage on the profitability of industrial companies listed in the Amman Stock Exchange.

The main hypothesis states that "there is no statistically significant impact of the degree of the financial leverage on the profitability of Jordanian industrial companies listed in the Amman stock exchange during the COVID-19 pandemic." The results of testing the sub-hypotheses derived from the main hypothesis indicated no clear direction of the impact of financial leverage on profitability in general for industrial companies listed in the Amman Stock exchange during the COVID-19 pandemic. The study found no significant effect of the degree of the financial leverage on Return on Assets, but there was a significant effect of the degree of financial leverage on Return on Equity. Therefore, the main hypothesis can be partially accepted, meaning it is not possible to judge the impact of the degree of financial leverage on the profitability of industrial companies listed in the Amman stock exchange during the COVID-19 pandemic.

2 .Impact of the degree of the financial leverage on the profitability of industrial companies listed in Amman stock exchange measured by Return on Assets :

The results related to the first sub-hypothesis, which states that "there is no statistically significant impact at the level of significance($0.05 \geq \alpha$) of the degree of financial leverage on Return on Assets (ROA) for Jordanian industrial companies listed on the Amman Stock Exchange during the COVID-19 pandemic," led to the acceptance of this hypothesis. The significance level was (0.465), which is greater than the significance level used in the study ($0.05 \geq \alpha$). Hence, the alternative hypothesis was rejected, and the null hypothesis, which states no effect of the degree of financial leverage on profitability measured by ROA, was accepted. The researcher believes this can be explained by the fact that Jordanian industrial companies did not optimize the use of their assets to generate profits during the study period (the spread of the COVID-19 crisis). An increase in the ROA indicates management's efficiency in using assets and generating profits. The inefficiency in using assets by industrial companies during the COVID-19 period might be justified since many companies were forced to suspend their operations for extended periods. When they resumed operations, they did so gradually and with less than their full production capacity**.**

The results of testing the first sub-hypothesis align with the study, [6], which indicated no impact of financial leverage on financial performance measured by Return on Assets (ROA). Conversely, a study of [10], highlighted a negative and significant effect of the degree of the financial leverage on the Return on Assets (ROA) in commercial banks. Additionally, the study [25], pointed to a negative impact of the degree of financial leverage on firm value. However, these findings differ from the results of a study [23], which suggested a positive effect of capital structure, measured by the debt-to-equity ratio, on Return on Assets.

3. Impact of degree the financial leverage on profitability measured by the Return on Equity (ROE):

The results related to the second sub-hypothesis, which states that "there is no statistically significant impact at ($0.05 \geq \alpha$) level of significance of the degree of financial leverage on Return on Equity (ROE) for Jordanian industrial companies listed on the Amman stock exchange during the COVID-19 pandemic," led to the rejection of the null hypothesis and acceptance of the alternative hypothesis, indicating a statistically significant effect of the degree of financial leverage on ROE with a significance level of (0.00), which is less than the significance level used in this study($0.05 \geq \alpha$). This suggests that the industrial companies listed in the Amman stock exchange managed to invest borrowed funds to achieve returns higher than the borrowing cost, providing an additional return to equity holders. One possible explanation could be that creditors reduced interest rates due to the COVID-19 pandemic. Additionally, the Central Bank introduced programs to support economic sectors during the pandemic, mainly by reducing interest rates on certain types of loans and increasing the ceiling of some financing forms provided to sectors affected by the pandemic, including the industrial sector. Furthermore, some sub-sectors of the industry, such as the pharmaceutical and food industries, benefited from halted imports and increased demand for local products, which reflected positively on their financial performance.

The results of testing the second sub-hypothesis align with the result of the study [20], which indicated a positive and significant effect of operational leverage and financial leverage on Return on Equity, as well as the study [6] and [20] which suggested an effect of financial leverage on financial performance measured by Return on Equity in Jordanian public shareholding companies. while a study of [25], pointed to a strong relationship between debt to-equity ratio and financial performance measured by Return on Equity. Additionally, a study of [23], indicated a positive effect of capital structure, measured by the debt-to-equity ratio, on Return on Equity.

5.2 Recommendations

Based on the study findings, the study recommends:

1. Industrial firms should find the optimal capital structure so that the financial leverage can positively impact the profitability of these companies.
2. Due to the unclear impact of financial leverage on Industrial firms' profitability in Jordan, they should depend on internal financing sources such as retained earnings, reserves, etc. as much as they can to avoid paying fixed financing costs on borrowed funds.
3. Carry out the necessary feasibility studies for the investment opportunities to ensure that there is a higher expected return than the cost of financing them so that the financial leverage can achieve its optimal objectives.
4. There is a need for more studies to compare the degree of financial leverage impact on the profitability of Jordanian industrial firms pre and post the Corona pandemic.

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References:

[1] Al-Barakat, Israa Qassem. The Impact of Financial and Operational Leverage on Return and Risk in Jordanian Industrial Companies, *Unpublished Master's Thesis*, 2011. Al-Balqa Applied University, Jordan

[2] John C., Groth and Ronald C. Anderson, Capital Structure: Perspective for managers, *Management Decision* 1997. Vol. 35, No. 7, pp. 552-561.

[3] Yu, F., "How profitable is capital structure arbitrage", *Financial Analysis Journal*, 2006, Vol. 62, No. 5, pp. 47-62.

[4] Gibson, Charles H, financial reporting and analysis, South-Western Cengage Learning 5191 Natorp Boulevard Mason, OH 45040 USA.

[5] Al-Shehri, Asmaa Muhammad. The Impact of Leverage on Profitability: An Applied Study on Joint Stock Companies in the Kingdom of Saudi Arabia, *The Comprehensive Multidisciplinary Electronic Journal*, 2020, edit (23), Month (4).

[6] Alewi, Nashaat. The Impact of Financial Leverage on Financial Performance in Jordanian Public Shareholding Companies Listed on the Amman Stock Exchange, *Unpublished Master's Thesis*, 2019. Middle East University, Jordan.

[7] Essam, Abbasi. The impact of the quality of financial information in assessing the financial performance of the economic institution and decision-making, *unpublished master's thesis*, 2012, Kasdi Merbah University, Algeria.

[8] Rajan, R. & Zinglese, Z., "What do we know about Capital Structure? Some Evidence from International Data", *Journal of Financial Economics*, 1995, 53, 3-42.

[9] Awadallah, A., & Gilani, Sharif. The impact of return on assets and the degree of financial leverage on the return on equity of Jordan Steel Company and its subsidiaries, an analytical study, *unpublished master's thesis*, 2016, Zarqa University, Jordan.

[10] Al-Maaita, Zain. The Effect of Leverage on Financial Performance in Jordanian Commercial Banks, *Unpublished Ph.D. Thesis*, 2018. Al Albayt University, Jordan.

[11] Akintoye, L., Effects of Capital Structure on Firms Performance: The Nigerian Experience. *European Journal of Economics, Finance and Administrative Sciences*, 2008. Vol. 10, Pp.233- 243.

[12] Abu Zaiter, Basil Jabr. Factors affecting the profitability of commercial banks operating in Palestine 1997-2004, *unpublished master's thesis*, 2006. Islamic University, Gaza, Palestine.

[13] Gill, Amarjit; Biger, Nahum & Mathur, Neil. The Effect of Capital Structure on Profitability: Evidence from the United States, *International Journal of Management*, 2011. Vol. 28, No. 4: 3 – 15.

[14] Sadiq, Ban Majid. The effect of using the balanced scorecard on profitability, *unpublished master's thesis*, 2015. Middle East University, Jordan.

[15] Abdel-Fattah, Bahira Mohamed, The Relationship between Capital Structure and Profitability in Insurance Companies Operating in Jordan, *unpublished master's thesis*, 2014. Middle East University, Jordan.

[16] Makau, Mwangi and Kosimbei. Relationship between Capital Structure and Performance of Non-Financial Companies Listed in the Nairobi Securities Exchange. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics. Kenya*, 2014. Vol: 1 Issue 2.

[17] Haddad, Fayez Selim. *Financial Management*, 4th edition, 2014. Dar Al-Hamid for publication and distribution.

[18] Matar, Muhammad. *Credit Financial Analysis, Scientific Tools and Uses*, 1st edition, 2003. Dar Wael for publication and distribution, Amman, Jordan.

[19] Samah, Ahmed Ali. The Impact of Leverage on Profitability: An Applied Study on the Saudi Transport Sector. 2020, *Rima Magazine*, edit (43), pp. 127-151.

[20] Ali El Din, Salma. The impact of leverage on industrial companies' overall return and risks, *Scientific Journal of Economics and Trade*, 2019. Volume (49), edit (1).

[21] Al-Subaie, Badah Mohsen. The relationship between and return on investment in Kuwaiti public shareholding companies, *unpublished master's thesis*, 2012, Middle East University, Jordan.

[22] Dimisyqiyani, E., Suhadak, S., & Kertahadi, K., The Effect of Financial Leverage on Firm

Value and Market Risk (Research on Consumer Goods Industries Listed in Indonesian Stock Exchange in the Year of (2010-2012). *Profit Jurnal Administrasi Bisnis*, 2017. 9(2), 23-34.

[23] Nassar, S., The impact of capital structure on Financial Performance of the firms: Evidence from Borsa Istanbul. *Journal of Business and Financial Affairs*, 2016. 5(173), 2167-0234.

[24] Mohamed, I., Effect of Financial Leverage on Financial Performance of Non-Financial Firms Listed at The Nairobi Securities Exchange, *Unpublished master thesis*, 2016. School of Business, University of Nairobi.

[25] Abubakar, A., Relationship between Financial Leverage and Financial Performance of Deposit Money Banks in Nigeria. *International Journal of Economics, Commerce and Management*, 2015. Vol. 111, No 10, pp. 0386- 2348.

[26] Ramadan, I., Leverage and the Jordanian Firms' Value: Empirical Evidence, *International Journal of Economics and Finance*, 2015, Vol. 7, No. 4.

[27] Securities Depository Center, [Online]. https://www.sdc.com.jo/arabic/index.php (Accessed Date: May 20, 2023).

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