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Capital Structure and Firm Value Relationship: The Moderating Role of Profitability and Firm Size Evidence from Amman Stock Exchange

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Abstract:-The study objects for determining whether there is an impact of financial leverage in the capital structure on firm market value, and to determine whether profitability and size of firms play a moderating effect role on the impact relationship of financial leverage on firm market value. The cluster sampling method is used in the selection of the sample among the listed firms at Amman Stock Exchange, where the utility-energy and the food-beverage listed firms are the two cluster, which is selected to constitute the sample. The secondary data covering the period 2011-2020, of the entire listed 5 utility-energy and 8 food beverage firms, had collected and used in the analysis and hypotheses testing. Tobin;s Q is used as an indicator for firm value, and debt ratio is used as a measure of debt in the capital structure mixing. Profitability is measured through the return on assets ratio, while the natural logarithms of total assets is used as a measure for firm size. Using the regression method, the study shows that debt in the capital structure has insignificant impact on firm value, while the results demonstrate that profitability and firm size, each of which, plays a moderating effect role in the effect relationship of debt in the capital structure, on firm market value.

1 Introduction

Two sources are available for financing business organizations, equity and debt, no more. Equity includes the contributions by shareholders, and the accumulated unpaid profits, or what is called retained earnings, while debt is attributed to creditors, and consisting of short and long-term liabilities. The firm financing decision is one among the most important decisions, because of its possible long-term effects on firm performance, profitability, liquidity, and may be the firm value. Normally, firms depend on a mix of equity and debt in its capital structure, where this mix may lead to cost increase or cost reduction, and therefore affects the profitability, and thereafter, it may influence the firm value [10].

The theorem of Modigliani and Miller (1958), was the starting point in the context of capital structure, where the theorem has two propositions. The first proposition states that firm value is irrelevant of debt-equity mixing in capital structure. The second proposition of Modigliani-Miller theorem

states that firm value is also irrelevant of the adopted dividend policy by the firm, so the payout ratio does not affect firm value [15]. These two propositions refer that firm value is not affected by financing decisions, nor by the dividend policy.

The current study focuses on firm size and profitability as potential moderating factors having interaction effects on the assumed effect relationship of capital structure on firm value. Firm value is an important indicator for investors, whether these investors are current or potential shareholders. Firm value is of great importance for investors, where investors normally prefer to invest more in firms with an increasing firm value. Financial leverage in the capital structure of business organizations may affect firm value, since financing is costing, where the chosen mix of debt and equity affects the cost of financing. The impact of capital structure had been enough investigated, but whether firm size and profitability moderate the impact of capital structure on firm value, is still ambiguous and no enough

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research investigated this assumed moderating impact. In addition, a contradiction exists in the findings of the studies that investigated the capital structure impact on firm value. Some prior research found that capital structure has a positive impact on firm value such as, Dang and Do [7], and Aggarwal1and Padhan [3]. In opposite, others found a negative impact of financial leverage in the capital structure, on firm value, as of, Luu [14], and Doorasamy [8]. In the other hand, some prior research found that capital structure has no impact on firm value, as of Abdallah and Hussein [1].

The relationship between capital structure and firm value is still ambiguous and needs more illustration and determination. Actually, no enough prior researchers studied this relationship, and illustrated whether firm size and profitability moderate this relationship, and this issue is still questionable. Firm value also has effects inside the firm and the management of firms, and some decisions of managements depend, to a large degree, on firm value.

Investors and creditors prefer investing in investments that are expected to generate high rate of return. They normally consider many financial indicators whenever they are required to take investment or credit decisions, among these is the firm market value, since the increase in firm market value is a part of share rate in addition to dividends. A temporary increase in market value is confusing, and decisions should be based on permanent steady rate of increase. Whether the increase in firm value is temporary or permanent, is based on several indicators, including the firm capital structure. The equity-debt mix in the capital structure is important to be taken into consideration by users, because it may be related to the change in firm value. Moreover, the mix of short or long-term debt may be related to firm value. In addition, managements are required to take the decision which are most likely will lead to higher market value. As a result, managers of firms should consider the possible effects on firm value, whenever a decision is required to be taken, and will lead to an increase in the capital structure. Firm size and profitability of firms are better to be considered by managers in this context, because the appropriate capital structure of small or medium-sized firms may be inappropriate for large-sized firms. Based on this discussion, the problem of the study is better expressed through the following two questions. Does financial leverage in the capital structure affect the market value of utilities-energy and food-beverage listed firms at Amman Stock Exchange (ASE)? Do firm size and profitability of business organizations moderate the assumed effect of financial leverage in the capital structure on firm value?

The current study seems important, at least by the standpoint of its authors. The idea of the study and the findings that this study will lead for, are important for managements of firms and for the different groups of users of financial information. Based on the findings, managers of firms will not neglect the effects on firm value, whenever a decision is under discussion, and will be aware of the different effects on firm value as a result of capital structure decisions. Moreover, investors and creditors will find that they have to consider the composition of capital structure, and the possible effects of that decision on firm value, since the increase in firm value is an increase in the rate of investment.

There are two main objectives of the study. First, to investigate whether the nature of capital structure mixing affects the market value of listed utilities-energy and food-beverage firms at ASE. Second, the more important objective is to determine whether firm size and profitability of business organizations moderate the assumed effect of capital structure on firm value. In addition, the study is an attempt since it adds more to the available literature regarding the relation between capital structure and firm value, including the interaction moderating effect of firm size and profitability.

The remaining of the study is organized to be as follows. Section 2 introduces the literature and the related prior researches, and the hypotheses of the study are shown in section 3. Section 4 shows the methods followed in the study, and the methods of data analysis and hypotheses testing, whereas chapter 5 presents the analysis and discussion, and the findings and conclusions are revealed in section 6.

2 Literature Review and Prior Research

Investors and shareholders are strongly interested with firm value, and they pay enough attention to market value. Firm value is normally associated with share market price, and reflects the perception of investors regarding the firm [12]. Several measures or financial ratios can be used as indicators or measures for firm value. Actually firm value refers

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for the share price relation with profitability, or with share book value. Brigham and Houston (2011), stated that price earnings ratio, price book value ratio, market book ratio, dividend yield ratio, and dividend payout ratio, each of which, can be used as a good indicator for firm value.

The composition and decision of firm capital structure is an important issue for the success of business organizations. Capital structure is defined in different ways. For instance, Gitman and Zutter [9], define capital structure as the mix of long-term debt and equity maintained by the firm. In addition, Parmasivan & Subramanian [19], stated that the term capital structure refers for the relationship between the different long-term sources of firm financing including equity capital, debt capital, and preference shares. Capital structure can also be defined as the entire resources used in financing the assets of firms. It can be also defined as the mix of equity and debt used in funding business organization.

The Modigliani and Miller theory (1958), stated that firm value is independent from capital structure under perfect capital market, where under a perfect capital market no asymmetric information, no taxes, no transaction cost, and no cost associated with bankruptcy [4] The theory means that the expected cash flows determines the firm value. Five years after the issuance of proposition 1 of Modigliani-Miller theorem, these authors issued proposition 2 in 1963, which took tax into consideration, where tax is ignored in proposition 1. Based on proposition 1 of Modigliani-Miller (1958), the value of a levered firm is the same as of an unlevered one. When proposition 2 issued in 1963, and tax is taken into consideration, using leverage in the capital structure became beneficial for firms because borrowed money decreases the income tax payable, and as a result, mixing leverage and equity became attractive and beneficial.

Next to the second proposition of Modigliani-Miller (1963), two theories were developed regarding the relationship between capital structure and firm value. The trade-off theory stated that using debt in capital structure is beneficial to business organizations, because using more debt in capital structure leads to tax benefits. Underline the trade-off theory, managements of firms prefer using more debt in its capital structure, and firms management are required to make a balance between the tax benefits and the cost of borrowed capital. Balancing between tax shield and cost of debt enables firms to achieve

the optimal level of debt, in the debt equity mixing. In occasion, despite that the trade-off theory explains the differences in debt-equity financing in different firms, but it does not explain the differences in this mix of debt equity in the same firm [11].

Myers and Najluf [17], developed the pecking order theory, where according to this theory, firms can generate more funds that was divided into debt and equity, and when a firm complies with a pyramid of financing sources, it prefers equity financing when it is available, while debt financing is preferable over equity when external financing is required. In this context, Shyam-Sunder and Myers [22], stated that firms determine debt level in its capital structure through a type of comparison between the benefits and cost of debt, where the optimal level of debt is reached when the marginal present value of interest tax shield equals the marginal present value of financial distress cost.

Business organization are required to choose the optimal capital structure, but unfortunately, no equation or rule can be followed or applied to achieve the optimal capital structure. The optimal capital structure is the mix of equity and debt where the cost of financing is at its minimum possible level, where this leads to the maximum possible firm value. Aljamaani [4], stated that the optimum capital structure is the capital structure at which the weighted average cost of capital is at the minimum, and thereby the value of the firm is at maximum.

The entire listed items in the right-hand side of the statement of financial position constitute the capital structure, which can be classified into equity and liabilities. Equity includes ordinary shares, preference shares, retained earnings, in addition to the premium to ordinary shares and preference shares. When the firm has treasury shares, the value of these treasury shares is deducted from equity. With regard to debt, it normally includes current liabilities, bonds payable, long-term notes payable, and long-term loans, which is required to be settled along a period of more than one year.

In fact, capital structure is affected by several factors, where some of these are internal, while others are external. More debt in the capital structure leads to more interest, and therefore the firm ability to pay these interests will decline, which thereafter leads to more risk. In addition, more debt in capital structure means less firm ability to receive additional borrowing, and therefore less flexibility in the capital

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structure. Interest rate is an important factor affecting the capital structure. Interest rate for bonds fluctuate along time, and when firms find that interest rate became high or increased, most firms switch to equity financing or to short-term debt. Tax policy affects the capital structure. Normally, interests are deducted from profits in an early stage, and leads to less taxes, or what is called tax shield, whereas dividends are paid later and normally within the next accounting period, and therefore it does not lead to a reduction in the taxable income, which may make debt more preferable over equity because it is less costing. The general level of business activities also affects the capital structure. When the general level of business is rising, firms will try to issue more debt and more equity securities, whereas when the general level of business is slacking, firms may use some of its available cash to pay debt securities or to acquire some of its outstanding equity securities [20].

Financial managers should struggle for achieving the most appropriate capital structures. The most appropriate capital structure can be achieved when the cost of capital is at the minimum and earnings per share at the highest. Using more debt in the capital structure leads to a reduction in liquidity and solvency, since more debt needs for interests. The appropriate capital structure maintains flexibility, and therefore more future ability to borrow, and at the same time, higher ability to settle or pay some of the outstanding debt. In addition, a firm should keep control over debt, where debt should be maintained within the limits of payment ability.

Business organizations should make enough effort to choose the optimal capital structure. The optimal capital structure is the mix of equity and debt which leads to the minimum cost of capital, and maximum firm value, and hence, the highest possible wealth for shareholders. Nevertheless, the following considerations are required to be taken into consideration whenever firm value maximization is the main goal for firms [20].

1. Debt is required to be adopted when the cost of borrowing is less than the expected rate of return for investment. In this case, the excess of rate of return over cost of capital, leads to higher firm value.
2. Using debt in capital structure leads to less income tax, because interest expenses are deducted from taxable income. This is called the income tax shield.
3. Using more debt leads to higher risk, therefore, firms are advised to use more debt, when it does not lead to higher risk.
4. Firms are required to maintain flexible capital structure, where firms can pay a portion of debt or can acquire some of its outstanding shares.

Luu [14], investigated the impact of capital structure of listed chemical firms at Stock Market of Vietnam. The main objective of the study was to determine whether the nature and composition of the capital structure affect the value of chemical firms. Secondary data covering the period 2012-2017, of the entire listed 23 chemical firms had collected and used in the analysis and hypotheses testing. Tobin's Q is used to represent firm value as the single dependent variable. A single independent variable is taken into consideration, and had tested in their impact on firm value in the study. The ordinary least square method, in addition to other methods, were used in data analysis and hypotheses testing. The study showed that an inverse relationship exists between capital structure and firm value, where in more details, firm value declines by the increase of debt proportion in the capital structure. Moreover, the study found that when firms have greater asset turnover, firm size, and number of years the firm have in operations, firms have less market value.

Doorasamy [8], had an important contribution in the potential effect relationship of capital structure on firm value. The objective of the study was to examine the relationship between capital structure and firm value of the East African countries, and to show how managerial ownership affects this relationship. The secondary data covering 10 years, from 2009 to 2019, of 65 listed firms of Nairobi, Dar Es Salam stock Exchange, and Uganda Stock Exchanges, had collected and used in the analysis and hypotheses testing. The study employed the Generalized Method of Moments, as an estimation approach, and the multiple linear regression method had used in data analysis and hypotheses testing. One important findings of the study is that leverage has a significant impact on firm value, and that managerial ownership has a significant inverse relationship on the effect relationship of leverage on firm value.

Dang and Do [7], carried out a study with the purpose of investigating whether capital structure and other indicators affect the value of firms of Vietnam.

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To achieve the objective of the study, the authors collected secondary data covering the period 2012-2012, of 435 listed nonfinancial firms at Vietnam Stock Exchange. The sample of firms includes 4 different industries. Several findings the study led for, but the most important conclusion is that there is a positive significant impact of capital structure on firm value in firms of food-beverage industry, and negative significant impact on the value of wholesale trade and construction firms, as well as real state firms. The results also revealed that there is no significant impact of capital structure on the value of firms when the entire industries are taken together as one group.

Abidin et al [2], attempted to determine the impact of short-term debt, long-term debt, and total debt to total assets, on firm value. Return on sales, and revenue growth, were used as control variables. To achieve the objective of the study, the secondary data covering the period 2015-2018, of a sample consisted of 15 out of 27 listed consumer goods firms and food and beverage sub-sector manufacturing firms at Indonesia Stock Exchange. Using the regression method, the results showed that short to total assets and long term debt to total assets, each of which, has no significant impact on firm value, whereas total debt to total assets has a negative impact on firm value.

The aim of Santosal's study [21], was to investigate the moderating role of firm size on the relationship between firm financial characteristic and corporate governance from one side, and Islamic firm value, in the other side. The secondary data available in the financial statements of a purposive sample consisted of 110 listed firms at Indonesia Stock Exchange , covering the period 2013-2018, had collected from the Indonesia Capital Market Institute, the Indonesian Capital Market Directory, and Islamic firm periodically official websites, and analyzed to achieve the goals of the study. Using the regression method, the results showed that there is a significant positive effect of leverage, profitability, and efficiency on Islamic firm value, while liquidity and audit committee include no effect. The study found that firm size has a reinforcing effect of the different independent variables. Because of the firm size-moderating role, liquidity and audit became having significant positive impact on Islamic firm value.

The objective of Hirdinis's (2019) study, was to determine the impact of capital structure and firm size on firm value, and to identify whether profitability moderates this relationship. To achieve the objective of the study, 7 out of 47 listed mining firms at Indonesia, satisfying the conditions to be within the study purposive sample, so secondary data covering the period 2011-2015, of these seven firms, had collected and used in the analysis. Using the multiple linear regression method, the results showed that capital structure has a positive significant impact on firm value, whereas firm size has a negative significant effect on firm value. It also reveals that profitability does not significantly affect firm value, while firm size has a positive significant effect on profitability, and profitability does not moderate the effect relationship of capital structure and firm size on firm value.

Natsir and Yusbardini (2019), carried out a study with the aim of investigating the impact of capital structure on firm value through profitability, where profitability is an intervening variable. To achieve the objective of the study, secondary data covering the period 2013-2017 of 17 public Malaysian firms had collected and used in the analysis. It is apparent that firm market value is the dependent variable of the study, while capital structure is the independent, but profitability is used as an intervening variable. Using the multiple linear regression method in addition to other methods, the results showed that capital structure significantly affects profitability, and firm size, capital structure, and profitability, each of which, has a significant impact on firm value. The last conclusion of the study is that profitability affects firm value.

Almahadin and Oroud [5], carried out a study with the purpose of investigating the role of profitability on the capital structure with firm value relationship. Except commercial banks, the secondary data, covering the period 2013-2017, of the remaining listed firms at ASE, had collected and used in the analysis and hypotheses testing. Using the panel data analysis, and hieratical regression, the study revealed that there is a significant adverse relationship between capital structure and firm value. In addition, results showed that studying the interaction impact of profitability on capital structure relationship with firm value, improves the understanding of the relationship between capital structure and firm value.

Uzliawati, et al [23], carried out an important study as an attempt to identify the optimal capital structure of business organizations. The main

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objective of the study was to examine the impact of capital structure of the listed manufacturing firms at Indonesian Stock Exchange on firm value. To achieve the objective of the study, secondary data, covering the period 2012-2015, of a sample consisted of 101 listed manufacturing firms. The ordinary least square method had used in testing the hypotheses of the study, and the results showed that the higher the capital structure with debt to equity ratio and long-term debt to assets ratio, the higher the firm value, whereas, the lower the long-term debt to equity ratio, the lower the firm value. In addition, the study revealed that there is a significant relationship between debt to equity ratio and long-term debt to assets ratio in one hand, and the firm value in the other hand, whereas a negative relationship exists between long-term debt to equity ratio and firm value.

Muigai and Muriithi [16], carried out a study, as an attempt to determine whether capital structure affects financial distress of the listed nonfinancial firms in Kenia, and also to determine the moderating role of firm size on this effect relationship. Secondary data covering the period 2006-2015 of the entire listed 40 non-financial firms had collected and analyzed. Using the feasible general least square method for hypotheses testing, the results showed that firm size significantly moderates the effect relationship of capital structure on financial distress of firms. In more details, the results revealed that, in general, debt has a negative significant impact on financial distress, but this effect becomes positive by the increase in firm size.

Aggarwal and Padhan [3], explored attention with the impact of capital structure of Indian listed hospitality firms on firm value. In more details, the objective of the study was to examine whether capital structure has an impact on firm value of listed hospitality firms of India. To achieve the objectives of the study, secondary data covering the period 2011-2015 of 22 hospitality firms, had collected and used in the analysis. Several variables are taken into consideration in this study to examine whether each affects firm value including, firm quality, tangibility, profitability, size, growth, liquidity, in addition to some macro variables. This empirical study which had been carried out through the panel data techniques, and using the ordinary least square method, in data analysis and hypotheses testing, showed that a significant relationship exists between firm value in one hand, and each of firm quality, leverage, liquidity, size, and economic growth.

Priya, Nimalathasan, and Piratheepan [20], carried out a study in Sri Lanka regarding the relationship between capital structure and firm value. The main objective of the study was to determine whether a relationship exists between capital structure and firm value. To achieve the objective of the study, the authors collected the secondary data covering the period from 2007 to 2011 of 20 out of 31 listed manufacturing firms at Sri Lanka. Using correlation and the multiple linear regression method, the results showed that capital structure has a significant impact of firm value ratio, and the equity ratio has a significant correlation with earnings per share.

Lixin and Lin [13], investigated the relationship between debt financing and market value of 272 Chinese listed real state firms at Shanghai Stock Exchange and Shenzhen Stock Exchange. To achieve the objectives of the study, secondary data covering the period 2002-2007 of these firms, had collected and used in the analysis and hypotheses testing. Using the multiple regression method in hypotheses testing, the results showed that increasing debt financing leads to higher market value.

3 Study Hypotheses

Based on the consideration of the related literature and prior research, the following hypotheses had been developed.

Ho1. Financial leverage in the capital structure of the listed utility-energy and food-beverage firms at Amman Stock Exchange, does not affect the market value of these firms.

Ho2. The profitability of the listed utility-power and food-beverage firms at Amman Stock Exchange does not moderate the effect relationship of financial leverage in the capital structure and the market value of these firms.

Ho3. The size of the listed utility-power and food-beverage firms at Amman Stock Exchange does not moderate the relationship between financial leverage in the capital structure and firm value.

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4 Research Methods

The population of the current study includes the entire listed shareholding firms at (ASE), where a cluster sample is used when two clusters are selected to be within the sample including, the utility-energy and the food-beverage firms. As a result, the sample of the study consists of the entire 5 utility-energy listed firms and the entire 8 food-beverage listed firms are included in the sample.

There are three types of variables are involved in the study. Firm value is the single dependent variable, whereas financial leverage in the capital structure is the independent variable. The moderating variables include both of profitability and firm size. Tobin's Q is used as a measure of firm value, as the dependent variable, where it is computed by dividing the equity market value by the equity book value. Debt ratio is used as a measure of financial leverage in the capital structure, as the single independent variable, where debt ratio is the ratio of total liabilities to total assets. Return on Assets (ROA) is used as a measure of firm profitability, where it is the relation of income to total assets. Natural logarithms of total assets is used as a measure of firm size.

Two regression methods are used in testing the hypotheses of the study including the single, and the multiple linear regression methods. Therefore, three models are used in the study as follows.

Model 1
$$FMV = a + b1DTR + E \quad (1)$$

Model 2
$$FMV = a + b1DTR + b2ROA + b3(DTR \times ROA) + E \quad (2)$$

Model (3)
$$FMV = a + b1DTR + b2SZE + b3(DTR \times SZE) + E \quad (3)$$

Where:
a: intersection referring for the value of firm when the independent variable equals zero.
b1, b2, and b3, each of which refers for the slope of firm value on the related independent variable.
FMV: firm value, measured using Tobins' Q
DTR: debt ratio, where it is the relation of total liabilities to total assets.

ROA: return on assets, or the relation of net income to total assets.
SZE: firm size, measured by the natural logarithms of total assets.

All hypotheses are tested following 0.95 level of confidence, or 0.05 (1-0.95), predetermined coefficient of significance. Simple regression is used in testing the first hypothesis, but the multiple linear regression is used in testing the remaining two hypotheses. The comparison between the computed and the tabulated t-value or f-value, and the comparison between the computed and the predetermined coefficient of significance, are two criteria used in the acceptance-rejection decision of the null hypotheses. Based on the comparison criterion between the computed and the tabulated t or f value, the null hypothesis is accepted when the computed t or f value is less than the tabulated one, and in opposite, it is rejected when the computed t or f value exceeds the tabulated. Using the comparison criterion between the computed and the predetermined coefficient of significance, the null hypothesis is accepted when the computed coefficient of significance is higher than the predetermined one, and in opposite, the null hypothesis is rejected when the computed coefficient of significance is less than the predetermined.

5 Results and Analysis

5.1 Descriptive Statistics

Table (1) shows some descriptive statistics including, the mean as a good measure of central tendency, and the standard deviation as a common measure of variation. In addition, the table presents the maximum and minimum values of each dependent, independent, or moderating variable along the period of the study, that Starting from 2011 and ending on 2020.

Considering the contents of the table, it shows that the mean of Tobin's Q equals 6.1582, with 43.748 standard deviation. The mean of debt ratio, as a measure of financial leverage is 0.4683 with 0.31325 standard deviation. The mean of debt seems to be high, where a high debt means more risk. Taking ROA that refers for profitability, the mean of ROA equals 0.0297 and the standard deviation is

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0.07271. Actually, the profitability of firms seems low, despite that most of utility-power firms work with no competition because it is protected through long-term contracts by the government. The mean of the natural logarithms of total assets is 17.9521, with

1.66363 standard deviation, where this means that there are no large differences in firm size among firms, reminding that the natural logarithms of total assets is a measure of firm size.

Table 1. Entire Firms Descriptive Statistics

	Mean	Maximum	Minimum	Std. Deviation
Tobin's Q	6.1582	500.13	0.000	43.748
Debt Ratio (DTR)	0.4683	1.00	0.07	0.31325
ROA	0.0297	0.14	-0.46	0.07271
Log. Assets	17.9521	21.31	15.65	1.66363
No. of Observations	130	130	130	130

Table (2) shows a comparable data between the 5 utility-power firms, and the 8 firms belonging to food-beverage industry. The table reveals that there are some large differences between both industries. For instance, a difference is available in the mean of Tobin's Q, where this mean is 3.961, whereas, it is 7.537 for food-beverages industry. With regard to the mean of ROA, they seem close to each other, but there is a notable difference in the mean of firm size, as measured through Log. assets,

where the mean of the logarithms of total assets of power-energy firms equals 19.53, while it is 16.963 for firms belonging to food-beverage. The most important issue, is that utility-energy firms depend on debt more than equity, while food-beverage firms depend more on equity. This conclusion is stemmed the mean value of debt ratio, where it equals 0.667 in utility-power firms, and 0.344 in food-beverages firms.

Table 2. Comparative Descriptive Statistics between Utility-Power and Food-Beverage Firms

	Utility-Power Industry				Food-Beverage Industry			
	Mean	Maximum	Minimum	Std. Deviation	Mean	Maximum	Minimum	Std. Deviation
Tobin's Q	3.96	16.74	0.83	3.813	7.54	500.13	0.00	55.78
Debt Ratio	0.67	0.96	0.07	0.318	0.34	1.00	0.08	0.238
ROA	0.030	0.14	-0.12	0.039	0.029	0.14	-0.46	0.088
Log. Assets	19.53	21.31	16.94	1.403	16.96	18.37	15.65	0.851

5.2 Hypotheses Testing

5.2.1 The First Hypothesis
Table (3) shows the significant linear relationship between debt ratio and firm market value. The table shows that f-value equals 2.654, and the coefficient of significance (p-value) equals 0.106. Because the computed coefficient of significance (p-value), is

higher than the predetermined, which equals 0.05, and because the computed f-value is less than the corresponding tabulated one, the null hypothesis is accepted, whereas its alternative is rejected. The coefficient of determination (R^2) equals 0.020, which means that the independent variable explains only 2 percent of the variance in firm market value. Meanwhile, the adjusted R^2 equals 0.013.

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Table 3. The Statistics of the first Model

FMV = -3.163 + 19.903 DTR + 43.47018					
	Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Sig.**
Independent variables	Constant	-3.163	6.876	-0.460	0.646
	DTR	19.903	12.218	1.629	0.106
R^2		0.020			
Adj. R^2		0.013			
F		2.654			
Sig.		0.106			
Durbin-Watson		2.00			

Table (3) shows that debt ratio, without any moderating effects is insignificant predictor of firm market value. The first model, when the coefficients are solved became as follows.

FMV = -3.163 + 19.903 DTR + 43.47018   (4)

5.2.2 The Second Hypothesis
The second hypothesis had been developed to enable examining the assumed moderating impact of firm profitability, as measured by ROA, on the effect relationship of debt ratio on firm value, as measured using the Tobin's Q. The multiple linear regression model is used in testing this hypothesis. The statement of the hypothesis is listed again, in null form, as follows.

Ho2. The profitability of the listed utility-power and food-beverage firms at Amman Stock Exchange does not moderate the effect relationship of financial leverage in the capital structure and the market value of these firms.

Table (4) shows the results of the multiple linear regression model. The first model results in R^2 of 0.020, which means that that debt ratio only explains 2 percent of the variance in firm market value. The model shows also that f equals 2.654, which can not be considered significant. The second model includes profitability as a moderator variable. With regard to the second model, R^2 increases by 0.758 percent to be equals 0.778, and the computed coefficient of significance became equals zero, or a very close value to zero. Because f-value is greater than the tabulated, and because the computed coefficient of significance is less than 0.05, the null hypothesis is rejected, where instead, its alternative one is accepted. These results indicate that there is a significant moderating effect of profitability on the effect relationship of debt ratio on firm market value. Actually, when debt ratio is tested to determine whether it affects firm value, the test showed that there is no or very low impact of debt ratio on firm market value. When profitability is taken into consideration as a moderator between debt ratio and firm market value, it is shown that debt ratio significantly affects firm market value. This change in the result is because of interaction effects between debt ratio and profitability in one side, and other interaction effect between profitability (ROA), and firm market value. The existence of interaction effects between debt ratio and ROA, and between ROA and firm value, created an effect between debt ratio and firm value.

Table 4. Summary of the direct effects and interaction effects

Independent variable	Variables	First model		Second model	
		Sig	**F**	**Sig**	**F**
ROA	**Direct effects**	0.106	2.654		
	Interaction effects	-		0.000	147.087
	R^2	0.02		0.778	
	Adj.R^2	0.013		0.773	
	ΔR^2	0.758			
	ΔF	144.433			
	Sig.	0.000			

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Table 5, shows the coefficients of the second hypothesis. When the coefficients of the second model are solved, the model became as follows.

FMV = -9.507 + 26.096DTR + 324.578ROA – 1136.751 (DTR×SZE) + 4.387…………………………………..……(3)

Table 5. The coefficients of the 2nd Hypothesis

	FMV = 29.521 – 31.778DTR – 3339.447ROA + 174.647(DTR × ROA) + 33.66165				
	Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Sig.**
Independent variables	Constant	-9.507	4.387	-2.167	0.032
	DTR	-26.096	6.823	3.825	0.000
	ROA	324.758	53.532	6.063	0.000
	(DTR×ROA)	-1136.731	74.263	-15.307	0.000
R^2		0.778			
Adj. R^2		0.773			
F		147.087			
Sig.		0.000			
Durbin-Watson		2.725			

Based on the results of the test, model 2, which is concerned with the moderating impact of profitability, became as follows, when constants are solved.

FMV = 29.521 – 31.778DTR – 3339.447ROA + 174.647(DTR × ROA) + 33.66165   (5)

5.2.3 The Third Hypothesis
The third hypothesis had been developed to enable examining the assumed moderating impact of firm size, as measured by the natural logarithms of total assets, on the effect relationship of debt ratio on firm value, as measured using the Tobin's Q. The multiple linear regression model is used in testing this hypothesis. The statement of the hypothesis is listed again, in null form, as follows.

Ho3. The size of the listed utility-power and food-beverage firms at Amman Stock Exchange does not moderate the relationship between financial leverage in the capital structure and firm value.

Table (6) shows the results of the multiple linear regression model. The first model results in R^2 of 0.020, which means that that debt ratio only explains 2 percent of the variance in firm market value. The model shows also that f-value equals 2.654, which cannot be considered significant. The second model includes firm size as a moderator variable. With regard to the second model, R^2 increases by 0.336 percent to be equals 0.364, and the computed coefficient of significance became equals zero, or a very closed value to zero. Because f-value is greater than the tabulated, and because the computed coefficient of significance is less than 0.05, the null hypothesis is rejected, where instead, its alternative one is accepted. These results indicate that there is a significant moderating effect of firm size on the effect relationship of debt ratio on firm market value, of the listed utility-energy and food-beverage firms at ASE.

Table 6. Summary of the direct effects and interaction effects

Independent variable	Variables	First model		Second model	
		Sig	**F**	**Sig**	**F**
ROA	**Direct effects**	0.106	2.654		
	Interaction effects	-		0.000	24.075
	R^2	0.02		0.364	
	Adj.R^2	0.013		0.349	
	Δ R^2	0.336			
	Δ F	21.421			
	Sig.	0.000			

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Table 7, shows the coefficients of the third hypothesis. When the coefficients of the second model are solved, the model became as follows.

$$MV = 99.627 + 10.773DTR - 4.891ROA - 20.626(DTR \times SZE) + 45.482 \qquad (6)$$

Table 7. The coefficients of the 2nd Hypothesis

	FMV = 99.627 + 10.773DTR − 4.891ROA − 20.626(DTR×SZE) + 45.482				
	Variable	**Coefficients**	**Std. Error**	**t-Statistic**	**Sig.**
Independent variables	Constant	99.627	45.482	2.190	0.030
	DTR	10.773	16.079	0.670	0.504
	Size	-4.891	2.845	-1.719	0.088
	(SIZE×Log. Assets)	-20.626	2.822	-7.309	0.000
R^2					
Adj. R^2					
F					
Sig.					
Durbin-Watson					

Based on the results of the test, model 2, which is concerned with the moderating impact of profitability, became as follows, when constants are solved.

$$FMV = 99.627 + 10.773DTR - 4.891SZE - 20.626(DTR \times SZE) + 45.482 \qquad (7)$$

6 Findings and Conclusions

The study investigates the impact of financial leverage in the capital structures of listed utility-energy and food-beverage firms ASE on firm value. In additions, the study determines whether firm profitability and size moderate the impact of financial leverage in the capital structure of these firms on firm market value. The simple and multiple linear regression methods are employed in hypotheses testing, where the entire hypotheses are tested under 5 percent predetermined level of confidence, which is equivalent to 5 percent coefficient of significance. This conclusion is partially in agreement with Dang and Do (2021), while this finding is in opposite to the findings of Natsir and Yusbardini [18], Hirdinis's [12], and Uzliawati, et al [23].

Based on the data analysis and hypotheses testing, the results reveal that financial leverage in the capital structure of the listed utility-energy and food-beverage firms at ASE, has no direct significant impact on firm value. With regard to firm profitability as a moderating variable, the hypotheses testing reveals that profitability plays a moderating role in the impact relationship of financial leverage on firm market value. This result is in agreement with Almahadin and Oroud [5]. Similar to profitability, the results show that firm size moderates the impact relationship of financial leverage on firm market value. This finding agrees the finding of Santosal's study [21], Hirdinis's [12], Muigai and Muriithi [16]. More analysis of more industries are recommended to be made regarding the possible moderators that affecting the impact of financial leverage on firm market value.

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