Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2021.vol8.no3.0201

The Effects of Intellectual Capital and Financial Leverage on Evaluating Market Performance

Samer OBEIDAT[1], Khaled AL-TAMIMI[2], Emad HAJJAT[3]

Received: November 20, 2020 Revised: January 25, 2021 Accepted: February 03, 2021

Abstract

This study aimed to identify the key factors that affect the financial market performance (Price-Earnings Model) through a sample of 35 public shareholding industrial companies on the Amman Stock Exchange for the period 2010–2019, using statistical models and methods, such as the Simple Linear Regression Model, Correlation Coefficient, and dispersion board. The study results showed the nonexistence of a statistically significant effect between the intellectual capital and market value added (MVA) and market performance. Results also showed a statistically significant positive effect between financial leverage (FL) and the market performance, where the interpreted variation reached 64%. It showed from the analysis results that the relationship between (MVA) and market performance (P/E) agrees with the study hypotheses, while the result related to (FL) disagrees with the study hypotheses. The study recommends that public shareholding industrial companies should focus more on intellectual capital and show its value in the annual financial statements and reports, and those companies that have high profitability and the chance to hold gains and profits should rely less on debt and more on retained earnings, due to the high risk of debt and in line with the present unstable circumstances in Jordan, especially in light of the global Covid-19 crisis.

Keywords*:* Financial Leverage, Financial Market, Intellectual Capital, Market Share Price, Price-Earnings Model

JEL Classification Code: G32, B26, E44

1. Introduction

The topic of measurement and performance evaluation is of great importance in assessing the long-term performance of projects, and this importance increases with the increase of transparency requirements, which is required by laws and regulations to enhance the awareness of investors about performance, and protect property and wealth. Therefore, evaluating companies' performance is considered one of the necessary processes, due to the vital and effective role these companies play in the economy, and also due to the continuous fluctuations in the business environment. The study by Modigliani and Miller (M&M) in (1958) is considered the leading study in this regard, as it dealt with the relationship between the capital structure and capital cost, and its impact on corporation value (Asma, 2007). However, in 1963, M&M introduced a new theory that branched from the 1958 old theory, which related to the study of corporation value in light of the existence of taxes on its income. M&M concluded that the market value of company shares of a corporation that has both a levered and an unlevered capital structure will be higher than the market value of a corporation with only an unlevered capital structure by the value of tax shield. The intellectual capital also helps the awareness of investors, in terms of developing their funds, which provide for them a major base to identify the efficiency of company management and plays an important role in the investment fundamentals through its efforts to maximize the corporation value (Al-Jidou, 2016). The process of analyzing and evaluating securities have the attention of all parties that deal with the financial market because it considers an

[1]First Author. Lecturer, Department of Administrative and Financial Sciences, Irbid University College, Al-*Balqa*' Applied University, Jordan. Email: samerfo-82@bau.edu.jo
[2]Corresponding Author. Associate Professor. Department of Adminis- trative and Financial Sciences, Irbid University College, Al-*Balqa*' Applied University, Jordan [Postal Address: As-Salt, Jordan] Email: khaled_tamimi@yahoo.com
[3]Departments of Administrative and Financial Sciences, Irbid University College, Al-*Balqa*' Applied University, Jordan. Email: Hajjatemad@Gmail.com

important step in the selection process of invested securities, and therefore researchers and those interested in the field of investment and financial management went toward the development of performance evaluation indicators, which guide investors to make sound investment decisions, and direct investments toward maximizing wealth.

From this standpoint, several indicators emerged that were interested in the internal evaluation of the company, such as return on investment (ROI), return on assets (ROA), and others, which reflect the standpoint of management performance evaluation. Other indicators were interested in the financial market evaluation of investments, such as earnings per share (EPS), dividends per share (DPS), and share price to earnings per share (P/E) (Al-Nuaimi, 2012). In light of contemporary changes, corporate whether domestic or foreign face major challenges that represented in the intense competition and the openness on local, regional, and global markets and its results of low chances of survival, growth, and continuity, as well as the economic changes and concepts of technological and information revolution that depend on the knowledge of the financial market. These contemporary changes have highlighted the importance of intellectual capital as a major motive to increase the chances of survival and continuity, and to achieve the profitability and to increase the financial market performance which led companies to build an intellectual capital by increasing the investors' awareness, in an attempt to reach a positive gap in the added market value and to take advantage of it and invest in it to ensure the chances of survival and continuity, and achieve the growth in financial market performance. The same applies to debt in the controversy that surround it in the contemporary financial management about its impact on the positive value of company represented by the low-cost financial leverage and the tax benefits it provided or its impact on the company's negative value represented by the high interest on loans due to the control and manipulation of loans' owners on the financial leverage companies, which may expose them to high financial risks and eventually push them to declare bankruptcy.

To fill this gap, the study came to illustrate the impact of intellectual capital and financial leverage on improving the profitability of industrial companies listed on the Jordanian financial market. It's possible to formulate the problem's elements to show the impact of intellectual capital and financial leverage on the performance of the financial market, which represented in the price-earnings model or profitability multiplier-price model through the following questions:

- Is there an impact of intellectual capital on the performance of the financial market?
- Is there an impact of financial leverage on the performance of the financial market?
- What is the statistical significance of independent variables and its impact on the dependent variable, if any The importance of these questions comes for several reasons:
- The main objective of study represented in examining whether these factors help to explain changes in the performance of industrial companies as the study sample.
- The impact degree of each factor on maximizing the performance of financial market; as the study topic and therefore works to pay attention to these factors in the future and work to improve its performance. In addition, the attempt to predict the profitability of industrial companies through its influencing factors.
- Companies seeking excellence by investing in intellectual capital and financial leverage at the lowest cost strive to survive, grow, and continue, because the issue of achieving and maximizing returns considers one of the most important objectives of companies where it guarantee and increase its chances of survival, continuity, and expansion.

This study will try through a sample of 35 public shareholding industrial companies at the Jordanian financial market; for the financial period (2010–2019) to clarify the impact of loans and intellectual capital (market value added) on the market performance through the use of the Price-Earnings Model (P/E).

2. Literature Review

Considered as the leading study in this regard, Modigliani and Miller (1958) dealt with the relationship between financial leverage and its impact on the corporation value, and found no relationship between them even if the debt ratio reaches 100%. In another study related to the research on corporation value in the presence of a tax on its income, Modigliani and Miller (1963), concluded that in a corporation with a levered and an unlevered capital structure, the market value of company shares will be higher than the market value of a corporation with only an unlevered capital structure by the value of tax shield. Their study of 1966 found that successful management of the company seeks to achieve its primary goal of paying attention to the maximization of owners' wealth by raising the market share price to the highest level and reducing the cost of financial leverage.

The study by Varouj et al. (2005) sought to measure the impact of financial leverage (FL) on investment decisions by implementing it on 863 Canadian companies. The study results showed a negative impact of FL on the ROI ratio, where the FL was more negative in the low-growth companies than the high-growth companies. The study by Kootanaee et al, (2012) aimed to determine the relationship between EPS index, cash flow, and economic value added (EVA) and the market value per share. One of the most important results of this study indicated that both EPS and EVA indexes have a strong correlation with the market value

per share, unlike the cash flow index. Results also indicated that the EVA index has an explanatory ability for change in the market value per share greater than the EPS index. The study by Basuki (2012) aimed to identify the impact of value added on the profitability of banks and insurance companies and found that the correlation between added value and banks was weak but was strong with insurance companies.

The study by Mehralian et al. (2012) aimed to examine the relationship between intellectual capital and market value at the Iranian pharmaceutical companies and indicated the nonexistence of a relationship between the intellectual capital and market value. The study by Shehla et al. (2012) aimed to measure the impact of financial leverage on the financial performance of companies by implementing it on the Petroleum and Energy Sector, and the study concluded that FL leads to the improvement of a company's financial situation and therefore increase its growth opportunities inside the sector that it belongs. The study by Bashtawi and BaniTaha (2014) aimed to identify the impact of intellectual capital on the profitability of Jordanian industrial companies by preparing a questionnaire and distributing it to them, and found a significant and effective role of the intellectual capital on profitability.

The study by Ola and Kakhki (2014) aimed to identify the relationship between FL and investment decisions and the role of growth opportunities by implementing it on 97 companies listed on the Tehran Stock Exchange for the period (2003–2012), and the study found a positive and significant relationship between the second measurement of FL ratio (total long-term debt to total assets) and investment decisions. The study by Ray (2014) aimed to verify the relationship between EVA and the performance of the stock market by implementing it on 36 companies in India and found incorrectness in the talk that companies with a high value of EVA index always have the highest performance in the stock market and create value for shareholders. The study by Al-Jidou (2016) tried to identify the impact of intellectual capital on the performance of Iraqi banks and found that intellectual capital has a direct impact on the performance of banks.

The study by Dimisyqiyani et al. (2015) aimed to assess the impact of FL on the financial performance of Indonesian companies and found no impact of FL (debt ratio) on the financial performance (EPS). Finally, the study by Abu Wadi and SaqfAl-Hait (2017) aimed to evaluate the performance of Jordanian banks and found a positive relationship between market share and bank performance, while the relationship between debt and bank performance was reverse. Also, the study by Sumani and Roziq (2020) investigate the impact of business authority on the formation of capital and its impact on liquidation procedure and business competency. Findings indicate that business authority had a significant positive impact on the formation of capital, but business authority had a significant negative impact on the liquidation procedure and a significant positive impact on business competency. In addition, the capital formation has a significant negative impact on business competency, but the liquidation procedure doesn't have a significant impact on business competency.

The study by Dinh and Pham (2020) examines the impact of capital formation on the corporate competency of pharmaceutical corporations scheduled in the Vietnamese financial exchange. Study findings indicate that percentage of leverage, the percentage of long-period properties, and the proportion of dues to properties have a positive correlation on company's competency, while personal funding negatively influence the property rights. Nguyen et al. (2020) conducted a study to find the effect of external possession and supervision on the business competency of registered companies on the Vietnamese financial exchange. The collected data include 427 registered companies; in all areas for five years during the period (2014–2018). Findings showed that proportion of external possession and corporate size has a positive effect on business competency. The current study aimed Tran (2020) to know the impact of the degree of total leverage on the dividend policy of the bank. We use a large sample of US bank holding companies from 2000:Q1 to 2017:Q4 to shed light on our research question. Our empirical analysis provides consistent evidence that banks with a high degree of total leverage (i.e., banks with a relatively high fixed-to-variables cost) are less likely to pay dividends, and they spend a lower fraction of incomes to pay back shareholders, suggesting a higher conservatism in dividend policy of banks subject to a high degree of total leverage.

The study by Akhtar (2020) compared the impact of market multipliers on ROE between emerging financial companies (ASEAN) and advanced financial markets (European) on a sample of 4,725 companies for fifteen years. Results show that market multipliers fluctuate across emerging and developed financial markets but in both markets, where price ratios/book value, price/cash flow, price/dividends, and price/sales positively affect ROE or dividends but price/earnings and profit growth negatively affect ROE in the ASEAN market. In contrast, price/earnings are not important while profit growth positively affects ROE in the European markets.

Anwaar (2016) conducted a study to examine the data of London Market Index to test the relationship between financial ratios and corporate performance. The study results show that profit margin and ROA have a positive impact on ROE while EPS have a negative impact on ROE. Al- Nuaimi's (2012) study aimed to identify the role of MVA and ROIC on measuring the performance of Iraqi banks and therefore the study will focus on examining the relationship between the MVA level and ROIC ratio and its impact level on owners' wealth. The study found that financial factors represented in ROIC don't significantly affect the level of MVA and consequently the wealth of shareholders. Other non-financial factors also represented by the emotional, psychological, economic, political, and security factors that

occurred during the year (2010) have an impact on the MVA level, and that investors get influence by those factors in their investment decisions.

The study by Cordeiro da and Machado (2018) aimed to detect the relationship between DPS in the Brazilian capital market and the ratio of market value to book value and ROE. Study found that market value/ book value ratio and ROE combined largely explained the fluctuations in DPS. Musallam (2018) carried out a study that aimed to explain the DPS or returns per share for companies listed in the Qatar stock market. Results indicated that profit-to-earnings ratio, earnings per share, and dividends ratio positively affect DPS. Al-Douri and Abbas' (2018) study aimed to identify the impact of economic factors on the MVA at the Jordanian commercial banks through the characteristic factors of financial performance. This study tested the impact of economic factors (GDP, inflation, interest rates) on the MVA and then tested the impact of these factors in light of the difference in distinct factors of financial performance (factors resulting from the analytical analysis of financial performance indicators) separately or as a whole. To test the study's hypotheses, researchers collected data for variables through the annual financial reports of Jordan Central Bank and the annual financial statements of commercial banks for a sample of nine banks during the period (2005–2014). Study results showed a large significant impact of study variables combined where it explained 70% of the changes in MVA while the results showed a low impact of both financial and economic factors. The most important was the approach of Jordanian commercial banks towards the use of MVA criteria and the characteristic factors of financial performance separately. Based on these findings, the study concludes a number of recommendations as one of the long-term Strategic Financial Assessment Standards for banks due to its information content about the MVA.

The study by Kumar (2017) aimed to examine the impact of EPS and the P/E on the corporate market value, and therefore the market share price will be the independent variable while the earnings per share and the price earnings ratio are dependent variables and the study is exploratory by nature. The study conducted on a sample of eight companies in the automotive sector based on the Nifty Automotive Index for five consecutive fiscal years (2011–2015). Multi-regression analysis was used to predict the impact of earnings per share and the price earnings ratio on the market price per share for selected companies in the automotive sector. The study result concluded that earnings per share found to be a very strong indicator on the market price per share, while the price earnings ratio significantly affects the prediction of market price per share for selected companies in the automotive sector as a whole.

The study by Hisham (2017) aimed to clarify the nature of relationship between EVA and MVA compared with the traditional accounting standards by implementing it on the companies listed in the CAC40 index. This comes in light of the debate among researchers about the best performance standard that can relate more to MVA, where the results of studies conducted in this regard were mixed and controversial. Some studies support the idea that EVA outweighs the traditional accounting standards in terms of the interpretive power of MVA, while other studies oppose this idea and consider that traditional accounting standards are the best in terms of their interpretive power of MVA. Results of our test for the first study hypothesis came in disagreement with the idea that EVA outweighs the traditional accounting standards in terms of the interpretive power of MVA, where EVA was able to explain 36% of the MVA, while the CFO and NOPAT scales were able to interpret 52% and 50% of the MVA, respectively. Therefore, EVA isn't the scale most associated with MVA compared with the traditional accounting standards, which agree with the studies that oppose the superiority of EVA while the results of second hypothesis test show that EVA contains little extra explanatory power of MVA compared with the traditional accounting scales.

3. Statistical Analysis and Hypotheses Testing

3.1. Descriptive Analysis

The study used the Simple Linear Regression Analysis model and Pearson Correlation Coefficient model to determine the nature of the relationship between variables, and also used the propagation panel or dispersion board to illustrate the relationship of independent variables with dependent variables through the graph to measure the study hypotheses, which can be formulated through the following mathematical models:

$$\text{P/E} = a + \beta_{FL} + e \quad (1)$$

$$\text{P/E} = a + \beta\ \text{MVA} + e \quad (2)$$

Where:

P/E: Price-Earnings Model = normal share price/earnings per share.

MVA: Intellectual capital expressed in the market value added per share, represented in the difference between the market value per share (market share price* number of traded shares) and the equity book value.

FL: Financial Leverage = liabilities/assets.

E: A random error and represents the effect of other variables and factors that are not included in the mathematical model.

Table (1) displays descriptive statistics for study variables, which include all arithmetic means and standard deviations.

The first line in Table 1 shows that the arithmetic mean for MVA amounted to (1.32) with a standard deviation of (1.085), while the second line displayed the arithmetic mean

of FL, which amounted to (–0.01) with a standard deviation of (0.159), and the third line shows the arithmetic mean for P/E with a standard deviation of (1.108).

3.2. Hypotheses Testing

H1: *There is no statistically significant effect ($\alpha \leq 0.05$) of financial leverage (FL) on the performance of the financial market.*

It shows from Table 2 that the interpreted variation was (0.640), which means that LV explained (57%) of the P/E model, and the T-value amounted to (27.025) and statistically significant at the level (0.022), which is below the acceptance level of the hypothesis (0.05), and indicate a statistically significant positive effect of FL on P/E per share at the Jordanian public shareholding industrial companies, therefore this hypothesis will be rejected.

In Figure 1 propagation or dispersion panel(natural distribution) shows a positive effect between the two variables panel (natural distribution) shows a positive effect between the two variables.

Results of this hypothesis agree with the result of M&M study, which indicated that in a corporation with a levered and an unlevered capital structure, the market value of company shares will be higher than the market value of a corporation with only an unlevered capital structure by the value of tax shield. This means the corporation with a levered and an unlevered capital structure achieves tax shields that increase the net operating income (NOI) and reduce costs, therefore the market value will increase in the corporation. It proves that, by using the theory of NOI and with the existence of taxes on company's income, the corporation value increases linearly each time the amount of debt increases to a certain level in the corporation's capital structure, and this agrees with the study results by Ola and Kakhki (2014) and also the study results by Shehla et al. (2012), as shown in Figure 2:

Table 1: Arithmetic Means and Standard Deviations of Study Variables

Variables	Means	STDEV
MVA	1.32	1.085
FL	–0.01	0.159
P/E	1.40	1.108

H2: *There is no statistically significant effect ($\alpha \leq 0.05$) of the market value added expressed by MVA per share on the performance of the financial market.*

It shows from Table 3 that the interpreted variation was (0.006), which means that MVA explained (0.6%) of the P/E model, and the *T*-value amounted to (1.850) and statistically significant at the level (0.069), which is larger than the acceptance level of the hypothesis (0.05), and indicate the nonexistence of a statistically significant effect of MVA which explain (0.6%) of P/E at the Jordanian public shareholding industrial companies, therefore this hypothesis will be accepted.

In Figure 3 propagation or dispersion panel (natural distribution) shows the nonexistence of any effect between the two variables.

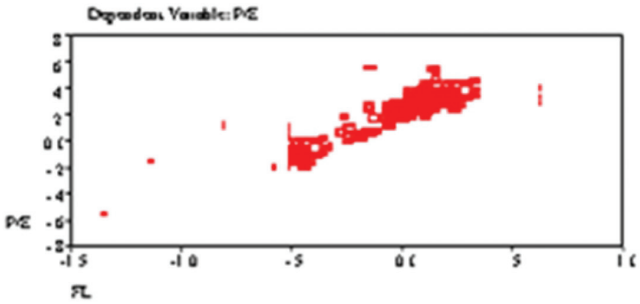

Figure 1: Natural Distribution of FL & P/E

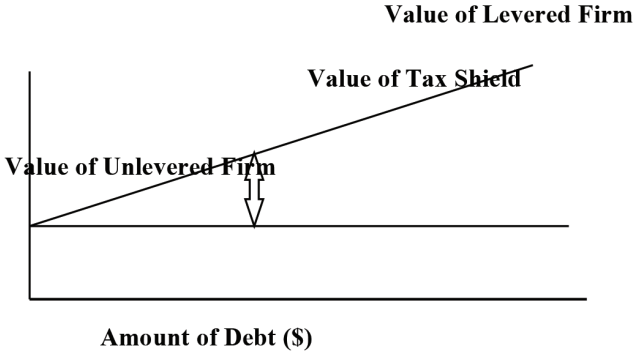

Figure 2: The Impact of FL on the Corporation Value, According to M&M Theory Value of the Firm ($)

Table 2: Regression Analysis for the Impact of FL on P/E

Independent Variable	R	R Square	F	Sig of (F)	B	Beta	t	Sig of (t)
FL	0.64	0.57	679.958	0.022	0.447	0.64	27.025	0.022

Dependent: (P/E).

Table 3: Regression Analysis for the Impact of MVA on P/E

Independent Variable	*R*	*R* Square	*F*	Sig of (F)	*B*	Beta	*t*	Sig of (*t*)
MVA	0.081	0.006	3.801	0.069	0.547	0.081	1.850	0.069

Dependent: (P/E).

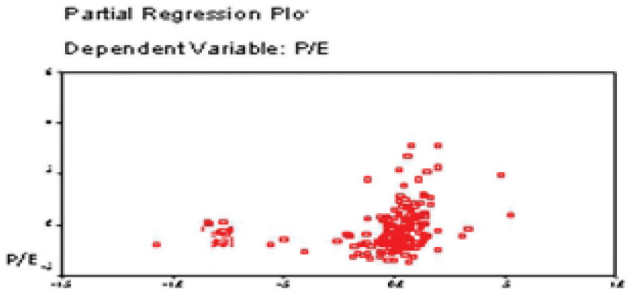

Figure 3: Natural Distribution of MVA & P/E

The second hypothesis did not find a statistically positive effect, therefore these companies consider their share prices in the financial market not high and for that reason its shares are no longer attractive, which means that investors are not willing to pay because the difference between the two values are not significant, and the corporations will not achieve any capital gains. This result agrees with the study by Basuki (2012) about the banking sector, as well as the study by Mehralian et al. (2012).

Finally, it is possible to say that capital structure is a mixture that includes debts, equities, and property rights used by the company to finance its assets, where the decisions of capital structure consider critical decisions that are taken by the corporate management in an effort to maximize the owners' wealth. Therefore, the reduction of capital cost considers one of the utmost importance issues at the financial management of any company, regardless of its business activities due to its association with the maximization of corporate value represented by market returns. Companies are trying to reach the optimal capital structure, which results from the balance between the financing forms, and this idea embodied in the study sample where we noticed that it reduced the cost of debt to the lowest level, which returned on it with the high financial performance of company and this was clear through the statistical analysis and the existence of positive significant relationship between them. However, we must recognize that overuse of debt in financing is a double-edged weapon that may increases the company's financial risk, which negatively affects the share price in the financial market and reduce profits margin but in general we didn't notice this issue in the study sample where we found that creditors prefer a low debt ratio in order to provide some protection for them, and also the high debt ratio makes the company face some difficulty of financial leverage in the future.

In regard to the independent variable; intellectual capital or MVA researchers attribute the reason to the lack of investors' awareness and the lack of interest of Amman Stock Exchange to conduct awareness seminars, which reflected on the weakness of NMVA and influenced by the lack of relationship and the weakness of study sample with the performance of financial companies. However, it should be taking into account that MVA in the financial markets with the strong and semi-strong efficiency gives a good measurement of corporate size and importance, and the prediction of its ability to create added value. This indicator also connects strongly with the development of market value per share, which influenced by all factors that are acceptable for quantitative measurement, such as financial ratios and the non-quantitative factors, such as psychological and emotional matters. Investors in the Amman Financial Market are influenced by these factors, whenever they make their purchasing or selling investment decisions.

4. Conclusion

The current study tried to identify the most important factors that affect the Price-Earnings Model (P/E) through a sample of 35 public shareholding industrial companies in the Jordanian financial market for the period 2010–2019, by using statistical models and methods, such as the Simple Linear Regression Model, Correlation Coefficient, and propagation or dispersion panel. The study results showed the nonexistence of a statistically significant effect of the intellectual capital (market value added) on market performance (P/E) model. Results also showed a statistically significant positive effect of financial leverage (FL) on the market performance(P/E) model, where the interpreted variation reached 64%. This is due to the tax shield that FL provides, which will help to reduce the cost burden of the company, but the overuse of financial leverage should not neglect because it will expose the company to financial risks (bankruptcy) and agency risks. The study recommended

that public shareholding industrial companies, which have a high profitability and the chance to hold gains and profits should rely less on debt and more on retained earnings, due to the high risk of debt and in line with the present unstable circumstances in Jordan Especially in light of the global COVID-19 crisis.

It showed from the analysis that the relationship between MVA and market performance (P/E) agrees with the study hypotheses, while the result related to FL disagrees with the study hypotheses, Therefore, corporations must concentrate on the intellectual capital (MVA) and gives it more attention because it was not statistically significant, and due to its importance as a factor that reflects the degree of investment awareness among customers. It shows the knowledge base and awareness in evaluating the efficiency of management through the optimal use of its resource and the enhancement of shareholders' rights. Intellectual capital also gives investors an indication of the integrity of the company's financial position and gives investors incentives to make an investment decision whenever it is high, but in case this position declined it will be an indication for investors not to invest in that company.

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