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An Investigation of the Impact of Macroeconomic Variables on the Performance of Companies Listed in the Tehran Stock Exchange Market

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ABSTRACT

The stock market of any nation is regarded as a significant avenue for capital circulation within its borders, while also serving as a reflection of the country's economic structure. Hence, comprehending the determinants that give rise to instability in the economy holds significant value for policymakers in the field of economics. The purpose of this study was to examine the impact of macroeconomic variables on the performance of companies listed in the Tehran Stock Exchange Market, specifically focusing on data obtained from the Tehran Stock Exchange. For data collection, an applied and descriptive-correlational approach was used. The statistical population of this study consisted of 130 companies listed in the Tehran Stock Exchange Market from 2014 to 2015. The Eviuse and SPSS software was utilized to examine the research hypotheses. The findings of the study indicated that at a significance level of five percent, the performance of the company and the anticipated return of shareholders are significantly influenced by macroeconomic variables.

Keywords: *Macroeconomic variables, Economic added value, Shareholder value creation, Tobin's Q*

INTRODUCTION

The significance of investment and the stability of the investment environment in fostering economic growth is widely acknowledged. Neglecting this crucial aspect can have detrimental effects on the long-term prosperity of the economy and impede production development. The allocation of financial resources (financing) for corporations represents a critical financial determination. Investments and financing are predicated on the principles of risk and return, with investors seeking a commensurate return commensurate with the level of risk assumed. In the interim, accurately valuing capital assets can establish a favorable foundation for investors to attain a sense of ease and stability within the realm of investment, thereby enhancing their willingness to assume the associated risks (Abzari et al., 2007).

In light of the prevailing economic conditions in Iran, there exists a pressing need to implement economic policies aimed at transforming the capital market. This transformation shall be achieved through the reformation of the stock market, as well as the attraction of financial resources by means of directing the private sector's savings and encouraging their active participation in economic activities. To this end, it is imperative to introduce innovative methods and tools that shall facilitate the realization of these objectives. The analysis of stocks is a crucial aspect of investment culture and holds significant importance in the field of finance. Investment is a financial activity that involves the allocation of resources in the present with the expectation of generating future returns. It is characterized by the willingness of investors to incur a loss of funds in the short term in order to achieve long-term gains. The concept of investment is rooted in the principle of risk and reward, whereby the potential for higher returns is associated with

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greater risk. The decision to invest is influenced by a variety of factors, including the investor's risk tolerance, investment objectives, and market conditions. In essence, investment is a strategic decision that requires careful consideration of various factors in order to maximize returns and minimize risk. The occurrence of future events is often shrouded in uncertainty, with varying degrees of unpredictability. The level of uncertainty associated with each event is not uniform. The process of investing in ordinary shares necessitates a preliminary assessment of the intrinsic value of the share in question, followed by a comparison with the prevailing market price. Various techniques have been employed to evaluate the fundamental worth of equities, including but not limited to stock cash flows, economic value added, discounted cash flows, and price-to-earnings ratio. Each of these approaches possesses unique attributes and is applied judiciously in specific contexts (Jones, Charles Zy, 2005).

In contemporary financial analysis, a significant number of analysts have adopted the employment of the price-to-earnings ratio as the primary determinant of value. The utilization of the price-to-income ratio of other companies in the industry and overall market changes is a prevalent approach employed to gauge the stock price (Pirasalehi, 1993). The expected rate of return demanded by investors in common stocks varies depending on their risk tolerance and expectations. The fundamental determinant of success in the realm of investing is the capacity to accurately assess the value of securities.

The ability to discern price discrepancies between the aforementioned scenarios is a crucial skill for investors, enabling them to make timely and informed decisions. Such discernment may confer a competitive advantage, allowing investors to act swiftly and effectively in response to market conditions. The aforementioned condition is deemed essential for the achievement of his objectives. The present study examines the impact of investor awareness on the price movement of investments with varying characteristics. Specifically, we investigate the extent to which the lack of awareness among investors regarding the differences between these investments can lead to a favorable price movement for the first investment. Our findings suggest that the sufficient condition for such a price movement is indeed the lack of awareness among investors about the differences between the investments. In the realm of securities evaluation, a fundamental principle of utmost significance is that the value of securities is equivalent to the summation of the present value of its forthcoming income. The present value of a series of incomes cannot be equated to the simple algebraic sum of those incomes, as the incomes obtained in earlier periods are subject to the time value of money, and therefore do not hold the same worth as the incomes obtained in more recent periods. The principle of the time value of money posits that the present worth of future cash flows ought to be taken into account. This implies that the current value of income should be given due consideration. In the event that future income is devoid of risk and guaranteed, the discount rate utilized to determine present value is the risk-free interest rate, which may be equivalent to the prevailing bank interest rate. Given the inherent uncertainty surrounding the income generated by bonds, it is advisable to employ a discount rate that exceeds the prevailing bank interest rate. According to Rai and Telangi (2013), the discount rate must incorporate both the time value of money, which is the risk-free rate and the risk and uncertainty of future income. In essence, the discount rate should be a reflection of these two factors.

Ghalibaf Asl's (2002) research investigated the correlation between the Tehran Stock Exchange's stock returns and the exchange rate from 1996 to 2001. The study's findings indicate that fluctuations in exchange rates have a detrimental impact on stock returns, while exchange rate changes over a specific time period have a favorable effect on the stock returns of companies.

Samti and Moradian Tehrani (2007) in their study entitled "Examining the Correlation between Company Value and Inflation Rate through the Tobin's Q Index in the Tehran Stock Exchange (1995-2005), found no statistically significant relationship between inflation and company value.

The impact of macroeconomic variables on the company's performance and the anticipated returns of its shareholders is a significant consideration. Changes in macroeconomic variables have the potential to impact stock prices and the cash flows of economic enterprises, as per the discounted cash flow theory. The impact on cash flows arises due to the interdependence between macroeconomic variables and the financial performance of enterprises. Consequently, it is necessary to adjust the risk and expected return of shareholders based on the pricing theory of capital assets. Alternatively, individuals possessing knowledge of macroeconomic variables may utilize said knowledge (information hypothesis) to attain greater returns and mitigate risk, thereby engaging in rational investment practices (individual decision theory). This study aims to investigate the impact of macroeconomic variables on the performance and anticipated returns of shareholders of companies listed on the Tehran Stock Exchange.

Per Capita Income

The measurement of a country's economic welfare is often based on the criterion of "per capita income", which holds significant importance. The aforementioned variable serves the purpose of indicating the capacity of the population to generate added value, as well as the individual contribution of each member of the society to the country's gross domestic product. Conversely, numerous esteemed global organizations employ the metric of per capita income for nations as a means of assessing the welfare of households and the degree of living standards in diverse countries. Despite the endeavors to establish a fitting gauge or standard for precisely evaluating the welfare of a nation's populace, no alternative to national income/GDP per capita has been furnished thus far. The Economic Cooperation Development Organization employs the per capita GDP of nations as a crucial metric in the computation of the better life index, which is utilized to rank member countries within the organization. Annually, the World Bank releases information regarding the Gross Domestic Product (GDP) per capita of various nations across the globe. This report provides an analysis of the fluctuations in Iran's national income and gross domestic product per capita over recent years, utilizing Central Bank statistics as the primary data source. The analysis is conducted from three distinct perspectives.

The determination of national income involves the incorporation of foreign production factors' income alongside the added value of the domestic economy's real sectors, as represented by gross domestic product at basic prices. The aforementioned variable denotes the Gross Domestic Product (GDP), which is computed by subtracting depreciation and incorporating the net income of foreign production factors. The per capita national income can be calculated by dividing the national income of a given year by the corresponding population figure. Additionally, the assessment of the financial status of individual urban households can serve as

an indicator of the per capita income of a country. Through the consideration of household size, it is possible to calculate the nominal income per capita for each member of the household. Given that price hikes have an impact on the rise of nominal per capita income, it is advisable to derive the growth rate of real per capita income by subtracting the inflation rate, and subsequently draw conclusions based on this metric. Notwithstanding the variability in the acceleration of nominal per capita expenditures during the preceding triennium, a consistent upward trajectory has been observed. However, it should be noted, as explicated in the antecedent section, that nominal expenditures are also susceptible to the impact of inflationary pressures. However, the consideration of actual expenses results in a more comprehensive comprehension of genuine per capita cost statistics.

Inflation

In the field of economics, the concept of “inflation” pertains to a rise in the overall quantity of currency in circulation, monetary earnings, or the cost of goods and services. In academic discourse, inflation is commonly defined as a situation where there is an excessive rise in the overall price level. Inflation refers to the phenomenon of rising and fluctuating prices within an economy. Various theoretical perspectives offer distinct interpretations of inflation, yet they all converge on the notion of a rising and erratic pattern of price escalation. The notion of inflation in its contemporary sense gained widespread acceptance during the 19th century. Prior to this, an alternative notion of inflation was employed to illustrate the escalation in the number of currency notes that were not redeemable for gold. The inflation rate can be determined by calculating the fluctuation in a designated price index, typically the consumer price index.

Non-Oil Exports

Exports that do not involve the sale or shipment of petroleum or petroleum-based products are called “non-oil exports”.

Iran's primary exports have predominantly consisted of crude oil, natural gas, gas condensate, and other related products for a significant period of time. The Iranian authorities have been releasing the country's export data under the label "non-oil" for several years, with the aim of reducing reliance on oil exports and boosting non-oil exports. This move comes in response to the observed trend toward diversification of the Iranian economy. The officials have excluded the oil and gas sector from their export statistics. The term "non-oil" export, as referenced by officials in previous statements, pertains to the exclusion of "crude oil" and "natural gas" as well as their primary derivatives from export data. This practice is implemented due to the limited value added during the production and exportation of these resources, which are essentially sold in their raw form. The exportation of goods and services without reliance on oil was a primary objective, and the exportation of natural resources such as oil and gas in their raw form was excluded from consideration, despite being referenced in the title as "non-oil."

From the outset of the non-oil export statistics reported by customs, the Iranian export statistics have consistently included the two sectors of "gas condensate" and "natural gas" as separate entities. Furthermore, certain primary oil and gas commodities are observed as export commodities, which are essentially identical to crude oil in regard to their production and exportation procedures. Consequently, for a more precise evaluation of Iran's non-oil trade

balance, it is imperative to exclude said goods from the country's export data and subsequently compute the trade balance.

Changes in Exchange Rates

The “exchange rate” is a highly impactful economic variable in emerging economies. The dependence of companies and institutions in such countries on imports from developed nations renders exchange rate fluctuations a crucial and impactful determinant of currency exchange rates and debt settlement. On the one hand, the appreciation of the exchange rate leads to an escalation in the level of foreign debt, while on the other hand, it results in a rise in the expenses incurred by these companies for procuring imported goods and services. The escalation of a company's debt can result in reduced liquidity, which in turn can adversely impact the distribution of profits, stock returns, and the price index of economic enterprises. This can lead to a rise in the cost of production, a decline in the company's profit margin, and a subsequent reduction in prices and returns of shares, ultimately resulting in a decrease in the stock index.
According to Bertor and Bodnal's (1994) findings, the exchange rate has a significant impact on the stock value of companies engaged in exporting. Miller and Rover (1998) conducted a study on American companies and discovered that a notable proportion, ranging from 13% to 17%, of American companies are directly impacted by fluctuations in exchange rates. The study conducted by Kim and Kyung (2006) aimed to examine the correlation between excess returns and interest rate risk across significant asset markets in Asia. The research findings indicate that asset markets exhibit a degree of sensitivity toward fluctuations in both short-term and long-term interest rates. The impact of fluctuations in exchange rates on the Ghanaian stock market was explored by Saifu et al. (2007). The study revealed that a statistically significant proportion of the surveyed companies, specifically 55%, were influenced by variations in the value of the US dollar. There exists a direct correlation between fluctuations in the value of the dollar and the stock range of the majority of companies.

Changes in Oil Prices

It has been approximately a century since oil has been a significant factor in Iran. Oil had limited economic significance in Iran since its discovery in the 1910s, but assumed a significant political role in the early 1950s. Beginning in the latter half of the 1950s and continuing through the 1960s, the primary driver of Iran's economy gradually shifted to oil revenues. Since the early 1970s, the fluctuating price of crude oil has played a significant role in Iran's economic and social landscape, resulting in numerous changes. Over the past four decades, the fluctuation of crude oil prices in Iran has been a topic of extensive debate and discussion among economic experts and researchers. Amidst the escalation of oil prices and the consequent surge in oil revenues, there have been deliberations regarding the optimal utilization of oil dollars. Conversely, during the decline in crude oil prices, these discussions have been amplified with regard to the most cost-effective approach to offset the dearth of oil revenues. Amidst the escalation in crude oil prices and the consequent surge in oil revenues, there was a notable increase in spending, particularly in the import sector. However, with the subsequent decline in oil prices and the corresponding reduction in oil revenues, there was a marked increase in budget deficits, leading to borrowing from the central bank. In both scenarios, there has been rampant inflation with prices increasing by double digits. The burden of this inflation has been

borne by consumers of end products, wage earners, and individuals with cash assets, as a result of the government's untested policy choices. A recurring pattern observed in the conduct of governments is the manifestation of a false sense of economic prowess, which is contingent upon fluctuations in oil prices. This phenomenon is characterized by a tendency to pursue economic ambitions in the wake of an oil boom, while simultaneously downplaying the significance of oil revenues in the national economy during a period of crude oil price collapse.

The revenue generated from oil is dependent on two factors: the global market price of crude oil and the quantity of oil extracted and exported. The resultant revenue is a product of the combined fluctuations in these two variables. The fluctuation of crude oil prices, inclusive of Iran's producers and exporters, is primarily influenced by the global supply and demand of crude oil. However, the production and export levels are determined by the individual producers' short and long-term decisions and capabilities.

Literature Review

Shahbazi, Kiyomarth; Rezaei, Ibrahim; and Abbasi, Abolfazl (2013) conducted a study entitled "Monetary and Financial Policies and Stock Market Efficiency: Empirical Evidence in Iran," and examined the correlation between monetary and financial policies and stock market returns in Iran. The researchers utilized quarterly data spanning from 1999 to 2008. Their findings indicate that the efficiency hypothesis of Iran's stock market with respect to financial policies is not supported, owing to the sporadic impact of government spending and taxes on current stock returns. Stock market activists often overlook the relevance of financial policy information, despite its potential impact on stock returns. Based on the findings of the estimated model, it can be inferred that the present money supply values exert a noteworthy adverse impact on the current stock returns, while the disruptions in this variable do not seem to have any bearing on the current stock returns. Thus, it can be asserted that the hypothesis regarding the effectiveness of the stock market holds true with respect to monetary policies. The findings validate that, in contrast to financial policies, stock market activists perceive monetary policies as a determinant of stock returns and incorporate variations in these policies in their computations.

The study conducted by Sobhani (2015) aimed to examine the correlation between shareholder value and Tobin's Q ratio among companies listed on the Tehran Stock Exchange. The researchers analyzed data from 1989 to 2012. The present study involved the selection of 19 companies as a statistical sample. The present study employs a descriptive correlation research design. To assess the hypotheses, the Kolmogorov-Smirnov test was utilized to evaluate the normality of the data, and multiple regression analysis was conducted. The findings, as indicated by the Kitobin ratio index, suggest that there is no statistically significant association between the generated shareholder value and the aforementioned variables.

In a study conducted by RezaZadeh (2016) entitled "Effect of Macroeconomic Variables on Stock Return Volatility of Tehran Stock Exchange: Observations Based on GARCH-X Model," an attempt was made to examine the impact of macroeconomic variables such as money supply growth rate, inflation rate, and production growth rate on stock return volatility. The study utilized the GARCH-X model for analysis. The objective of this study is to analyze the impact of industrial and free market exchange rate fluctuations on the instability of the Tehran Stock Exchange. The study utilized seasonal data spanning from 2003 to 2014 and employed generalized

autoregressive conditional heterogeneous variance models with GARCH-X explanatory variables and vector autoregression (VAR) to attain the desired objective. The findings of the model estimation indicate that the volatility of stock returns is positively and significantly influenced by the growth rate of money supply and changes in the logarithm of the exchange rate. Additionally, the inflation rate was found to have a positive effect on stock returns, but this effect was not statistically significant. The negative and significant impact of the growth rate of industrial production on the volatility of stock returns has been observed.

The study conducted by Zare et al. (2013) examined the impact of monetary policy on the stock market volatility of five countries, namely ASEAN, Malaysia, Indonesia, Singapore, Philippines, and Thailand. The researchers utilized the nonlinear Markov-switching model and non-parametric method in their investigation. The analysis of the monthly period spanning from 1991 to 2011 indicates that the implementation of contractionary monetary policy, specifically an increase in interest rates, exerts a significant and enduring impact on the stock market of the respective countries.

The study conducted by Omenike and Okwuchukwu (2014) examined the correlation between macroeconomic indicators and the stock market of Nigeria. The present investigation employs the GARCH-X model along with several variables, namely money supply, consumer price index, credits to the private sector, dollar exchange rate, and net foreign assets. Empirical analysis utilizing data spanning from 1996 to 2013 has demonstrated that there exists a positive correlation between stock returns and both the inflation rate and money supply. The impact of foreign assets on stock returns is statistically insignificant and negative, while two other variables exhibit a statistically significant and negative impact on stock returns.

The study conducted by Asgharian et al. (2015) aimed to examine the effects of macroeconomic uncertainty on the stock and bond markets in the United States. The authors utilized seasonal data spanning from 1986 to 2014 and employed the GARCH model in conjunction with MDAS-GARCH mixed data. Their findings indicate that the volatility of macroeconomic variables had a notable effect on the financial market, with this effect becoming more pronounced over time.

Methodology

The present study is classified as applied research and utilized inductive inference and statistical methods of correlation analysis. The data employed in this study was cross-sectional in nature. The present study's statistical population comprised all companies that are listed on the Tehran Stock Exchange. The present study's statistical sample comprises companies that satisfy the following criteria:

1) The termination of the companies' fiscal period ought to occur by the conclusion of March.
2) The companies should not change the financial year and stop operations between 2010 and 2015.
3) During the specified time frame, it is expected that the financial statements and their corresponding explanatory notes of the companies will be made fully accessible on the stock exchange's website.
4) The selected companies must not fall under the category of investment companies, financial intermediaries, or monetary establishments.
5) The companies that are chosen must have become a part of the stock exchange before 2007.

Considering the information provided above, the methodology employed for the selection of sample companies for the present study is delineated in Table 1-3.

Table 1. Sampling Process

All companies	493 companies
Inactive companies	159 companies
Acceptance and inclusion in the stock exchange since 2007	47 companies
Financial intermediaries and holding	42 companies
Fiscal year other than 12-29 and change of fiscal year	52 companies
Operational interruption and interruption of more than three months	63 companies
The statistical sample of the research	130 companies

The Variable of the Study

Table 2. Independent Variables

Description		Symbol	Source
Oil price changes	(Average monthly oil price changes in Rials), in the time performance of 2010-2015	OIL	Central Bank of Iran, 2017
Non-oil Export	Calculation of export goods (not oil and gas) annually in terms of Rials, in the time efficiency of 2010-2015	Exp	Central Bank of Iran, 2017
Inflation	Inflation rate in 2010-2015time returns	Inf	Central Bank of Iran, 2017
The per capita income	The ratio of the national income of each year to the population of the country in the same year, its measurement in terms of Rials in the time performance of 2010-2015	Gap	Central Bank of Iran, 2017
Exchange rate changes (dollars)	Calculation of exchange rate changes from the average monthly exchange rate changes, in the time period of 2010-2015	Exr	Central Bank of Iran, 2017

Table 3. Control Variables

Description	Calculation method	Symbol
size of the company	The logarithm of the company's total assets	Size

Rate of return on assets	Net profit divided by the total assets of the company by using the Base article [1]	ROA
Financial Leverage	Total liabilities divided by total assets of the company	Lev

Table 4. Dependent Variables

Description		Calculation method	Symbol
company's performance	The value created for shareholders	The added value of shareholders-(market value of equity x cost of common stock)	CSV
	Market added value	The market value of shares - book value of shares	MVA
	Tobin's Q	It is obtained by dividing the market value of assets (the book value of debt plus the market value of equity) by the book value of the company's assets.	Q

Hypotheses of the Study

H1.

Macroeconomic variables have a significant effect on economic added value.

$$\text{Ln (EVA)} = \alpha 0 + \beta_1 \ln OIL_t + \beta_2 \ln Exp_t + \beta_3 \ln inf_t + \beta_4 \ln Gap_t + \beta_5 Exr_t + \beta_6 \ln size_t + \beta_7 \ln ROA_t + \beta_8 \ln Lev_t + £$$

H2.

Macroeconomic variables have a significant effect on the value created for shareholders.

$$\text{Ln (CSV)} = \alpha_0 + \beta_1 \ln OIL_t + \beta_2 \ln Exp_t + \beta_3 \ln inf_t + \beta_4 \ln Gap_t + \beta_5 Exr_t + \beta_6 \ln size_t + \beta_7 \ln ROA_t + \beta_8 \ln Lev_t + £$$

H3.

Macroeconomic variables have a significant effect on Tobin's Q.

$$\text{Ln (Q)} = \alpha_0 + \beta_1 \ln OIL_t + \beta_2 \ln Exp_t + \beta_3 \ln inf_t + \beta_4 \ln Gap_t + \beta_5 Exr_t + \beta_6 \ln size_t + \beta_7 \ln ROA_t + \beta_8 \ln Lev_t + £$$

Regression models have been used to test the hypotheses.

Findings

Table 5 shows the descriptive statistics of research variables including mean, median, maximum, minimum, standard deviation, etc. For example, for the financial leverage LEV variable, the mean, median, maximum, and minimum values are 0.605, 0.60, 2.08, and 0.10, respectively.

Variables	EXR	OIL	EXP	GAP	INF	EVA	CSV	Q	SIZE	LEV	ROA
N/year	6	6	6	6	6	780	780	780	780	780	780
Mean	7.4900	4.3583	10.6750	2.1783	21.1000	-0.0287	0.1123	1.5805	6.1082	0.6051	0.1210
Median	7.4700	4.5650	10.6750	2.0950	18.5500	-0.0400	0.0200	1.4100	6.0300	0.6000	0.1100
Standard deviation	0.44372	0.35243	0.15195	0.21666	8.80015	0.11490	0.68359	0.64578	0.64027	0.21157	0.13346
Skewness	-0.010	-0.683	-0.675	1.594	0.428	0.263	1.025	1.714	0.754	0.935	0.391
Kurtosis	-1.881	-1.455	-0.451	0.855	-1.446	3.126	4.744	3.733	0.950	4.650	1.460
Minimum	6.94	3.82	10.39	2.01	11.90	-0.73	-2.39	0.59	4.44	0.10	-0.45
Maximum	8.01	4.67	10.85	2.65	34.70	0.54	4.36	5.05	8.30	2.08	0.63

Based on the provided information and Table 5, it is evident that the variable with the highest mean is the INF score (representing inflation) with a value of 21.10, while the variable with the lowest mean is the EVA score (representing added economic value) with a value of 0.0287.

The F-Limer test is utilized in single-equation estimations to arrive at a conclusive determination. At a 95% confidence level, the null hypothesis has been rejected in all models except for hypothesis 2, indicating that the panel data method is the appropriate approach. The selection between fixed and random effects models is a topic of discussion, wherein Hausman's test is employed. The findings indicate that the utilization of the random effects approach is appropriate for testing the hypotheses.

In single-equation estimates, the F-Limer test is used to make the final decision. At the confidence level of 95%, the null hypothesis of the test has been rejected in all models except hypothesis 2, so the panel data method should be used. As a result, there is a discussion of choosing between fixed and random effects models, for which Hausman's test is used. The results show that the random effects method should be used in the hypotheses.

Analyzing Hypothesis 1

H0: macroeconomic variables do not have a significant effect on economic added value.

H1: macroeconomic variables have a significant effect on economic added value.

$$Ln\ (EVA) = \alpha 0 + \beta_1 ln\ OIL_t + \beta_2 ln\ Exp_t + \beta_3 ln\ inf_t + \beta_4 ln\ Gap_t + \beta_5 Exr_t + \beta_6 ln\ size_t + \beta_7 ln\ ROA_t + \beta_8 ln\ Lev_t + £$$

Table 6. Summary of Statistical Results of Model 1 Test

Variable	Coefficients	Standard deviation	T statistic	)sig(	VIF
C	-0.448655	0.166767	-2.690317	0.0073	------
OIL	0.023105	0.005319	4.343823	0.0000	9.252640
EXP	0.039182	016407/0	2.388164	0.0172	1.786948
INF	-0.000308	0.000134	-2.302727	0.0216	10.09263
GAP	-0.010159	0.006867	-1.479442	0/1394	5.632115
EXR	0.037738	0.004478	-8.427099	0.0000	1.257361
SIZE	0.009446	0.006222	1.518117	0.1294	1.069229
ROA	0.801827	0.043167	18.57486	0.0000	1.923359
LEV	0.095149	0.020096	4.734665	0.0000	1.834778
F	294.3341	Durbin-Watson statistic		*1.5348*	
Coefficient of determination	(0.0000)	Modified coefficient of determination		0.7507	

Based on the coefficient of determination, it can be inferred that 0.75% of the variations in the economic added value, which is the dependent variable, can be accounted for by the independent variables. Moreover, the hypothesis demonstrates a statistically significant association. As per the final column of Table 7, it can be observed that the Variance Inflation Factor (VIF) value for each of the independent variables is below 10 (VIF<10). Consequently, there exists no linear relationship among the independent variables. Consequently, the model that has been fitted is deemed to be valid.

The F-test was employed to assess the significance of the entire model. Based on the probability associated with the computed F statistic (0.0000), it can be asserted that the regression model that was fitted is statistically significant. Based on the coefficient of determination of the fitted model, it can be asserted that approximately 75% of the variations observed in the dependent variable of the model can be accounted for by the independent variables. The information has been provided. Table (7) presents the estimated coefficient of the independent variable OIL, indicating the impact of oil price fluctuations on economic added value with a significance level of 0.05. The coefficient of the independent research variable has a p-value of less than 0.05 (0.0000), indicating that there is a statistically significant impact of oil price fluctuations on economic added value with a 95% confidence level.

The coefficient estimate of the independent variable EXP, pertaining to exports that do not include oil, denotes the impact of said exports on economic value added, with an associated error level of 0.05. The statistical significance of the independent research variable's coefficient is

supported by a p-value that is less than 0.05. At a confidence level of 95%, it can be asserted that the exclusion of oil from exports has a noteworthy impact on the economic value added.

The coefficient estimate of the independent variable INF, which pertains to inflation, denotes the impact of inflation on economic value added, with a significance level of 0.05. The statistical significance of the independent research variable's coefficient is established as its p-value is found to be below 0.05.

The coefficient estimate for the independent variable of per capita income, specifically the GAP, indicates a non-significant relationship with economic added value at a significance level of 0.05. The coefficient of the independent research variable has a p-value greater than 0.05.

The coefficient estimate of the independent variable EXR, pertaining to fluctuations in exchange rates, indicates the impact of such fluctuations on the economic value added, with a significance level of 0.05. The coefficient of the independent research variable has a p-value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that alterations in the exchange rate have a statistically significant impact on the economic added value with a confidence level of 95%.

The examination of autocorrelation absence in the residuals has been conducted using the Camera-Watson test. The Durbin-Watson statistic computed for the residuals (1.5348) between the values 1.5 and 2.5 suggests the absence of correlation.

Analyzing Hypothesis 2

H0: macroeconomic variables do not have a significant effect on the value created for shareholders.

H1: Macroeconomic variables have a significant effect on the value created for shareholders.

$$Ln\ (CSV) = \alpha_0 + \beta_1 ln\ OIL_t + \beta_2 ln\ Exp_t + \beta_3 ln\ inf_t + \beta_4 ln\ Gap_t + \beta_5 Exr_t + \beta_6 ln\ size_t + \beta_7 ln\ ROA_t + \beta_8 ln\ Lev_t + £$$

Table 7. Summary of Statistical Results of Model 2 Test

Variable	Coefficients	Standard deviation	t statistic	)sig(	VIF
C	-5.010785	2.541838	-1.971323	0.0490	------
OIL	1.482384	0.087562	16.92962	0.0000	9.252540
EXP	-0.790573	0.279762	-2.825874	0.0048	1.786948
INF	0.003271	0.003625	0.902139	0.3673	10.09263
GAP	-0.378710	0.110237	-3.435415	0.0006	5.632115
EXR	1.075532	0.079537	13.52238	0.0000	1.257361

SIZE	-0.049913	0.021186	-2.355933	0.0187	1.069229
ROA	0.591885	0.132179	4.477901	0.0000	1.923359
LEV	0.028083	0.070319	0.399367	0.6897	1.834778
F statistic	147.9669	Durbin-Watson statistic		2.2635	
Coefficient of determination	0.6056	Modified coefficient of determination		0.6015	

Based on the coefficient of determination, it can be inferred that 0.60% of the variations observed in the dependent variable (i.e., the value generated for shareholders) can be accounted for by the independent variables.

As per the final column, the Variance Inflation Factor (VIF) values for each of the independent variables are below 10 (VIF<10). Consequently, there exists no linear relationship among the independent variables. Consequently, the model that has been fitted is deemed to be valid. The F-test was employed to assess the significance of the entire model. Based on the probability value of the calculated F statistic (0.0000), it can be asserted that the fitted regression model holds statistical significance. Based on the calculated coefficient of determination for the fitted model, it can be asserted that approximately 60% of the variations observed in the dependent variable of the model can be accounted for by the independent variables. The information has been provided. The coefficient estimate for the independent variable OIL, pertaining to fluctuations in oil prices, indicates the effect of such changes on shareholder value, with a significance level of 0.05. The coefficient of the independent research variable has a p-value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that there is a significant impact of oil price changes on shareholder value at a confidence level of 95%.

The coefficient estimate for the independent variable EXP, pertaining to exports that exclude oil, signifies the effect of said exports on shareholder value, at a significance level of 0.05. The statistical significance of the independent research variable's coefficient is established as its p-value is below 0.05. Based on the statistical analysis conducted, it can be concluded that the exclusion of oil from exportation has a noteworthy effect on the shareholder value generated, with a confidence level of 95%.

At a significance level of 0.05, the regression coefficient for the independent variable "INF inflation" suggests that there is no significant effect of inflation on shareholder value. The coefficient of the independent research variable was found to have a p-value of 0.3673, which exceeds the significance level of 0.05. Therefore, it can be concluded that inflation does not have a statistically significant impact on shareholder value creation with 95% confidence.

The coefficient estimate for the independent variable GAP per capita income denotes the influence of per capita income on shareholder value generated, at a significance level of 0.05. The coefficient of the independent research variable was found to have a p-value of 0.0006, which is less than the significance level of 0.05. Therefore, it can be concluded that per capita income has a statistically significant impact on the value generated for shareholders with a confidence level of 95%. The coefficient estimate for the independent variable EXR, which pertains to fluctuations in exchange rates, indicates the impact of such fluctuations on

shareholder value at a significance level of 0.05. The coefficient of the independent research variable has a p-value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that fluctuations in exchange rates have a statistically significant impact on shareholder value at a 95% confidence level. The Durbin-Watson test was utilized to investigate the absence of autocorrelation in the residuals. The Durbin-Watson coefficient of 2.2635 between the numerical values 1.5 and 2.5 denotes the absence of correlation among the residuals.

Analyzing Hypothesis 3

H0: Macroeconomic variables do not have a significant effect on Tobin's Q.
H1: Macroeconomic variables have a significant effect on Tobin's Q.

$$Ln\ (Q) = \alpha_0 + \beta_1 ln\ OIL_t + \beta_2 ln\ Exp_t + \beta_3 ln\ inf_t + \beta_4 ln\ Gap_t + \beta_5 Exr_t + \beta_6 ln\ size_t + \beta_7 ln\ ROA_t + \beta_8 ln\ Lev_t + £$$

Table 8. Summary of Statistical Results of Model 3 Test

Variable	Coefficient	Standard deviation	t statistic	)sig(	VIF
C	-7.579126	2.256038	-3.359484	0.0008	------
OIL	0.703780	0.059461	11.83602	0.0000	9.252540
EXP	0.184775	0.257095	0.718704	0.4725	1.786948
INF	-0.011655	0.001797	-6.486217	0.0000	10.09263
GAP	-0.221090	0.103938	-2.127133	0.0337	5.632115
EXR	0.743860	0.070729	10.51700	0.0000	1.257361
SIZE	-0.220376	0.094413	-2.334163	0.0198	1.069229
ROA	2.639885	0.402758	6.554515	0.0000	1.923359
LEV	0.500021	0.123676	4.042981	0.0001	1.834778
F-statistic	51.9774 (0.0000)	Durbin-Watson statistic		1.5435	
Coefficient of determination	0.3504	Modified coefficient of determination		0.3436	

Based on the coefficient of determination, it can be asserted that a mere 0.35% of the variations observed in the dependent variable, Tobin's Q, can be accounted for by the independent variables. Collinearity refers to a scenario in which an independent variable can be expressed as

a linear combination of other independent variables. When the collinearity in a regression equation is high, it indicates a strong correlation between the independent variables. It may lead to reduced validity of the model, despite the high correlation of R^2. As per the final column of Table 8, it can be observed that the Variance Inflation Factor (VIF) value for each of the independent variables is below 10 (VIF<). Consequently, the absence of collinearity among the independent variables is observed. Consequently, the model that has been fitted can be deemed valid.

Prior to testing the research hypothesis predicated on the obtained results, it is imperative to ascertain the accuracy of the results. The significance of the entire model was evaluated using the F test. Based on the calculated F-statistic probability (0.0000), it can be asserted that the fitted regression model holds significance.

Based on the coefficient of determination of the fitted model, it can be asserted that approximately 35% of the variations observed in the dependent variable of the model can be accounted for by the independent variables.

The coefficient estimate for the independent variable OIL and its correlation with fluctuations in oil prices indicate the impact of such changes on Tobin's Q, with a significance level of 0.05. The coefficient of the independent research variable has a p-value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that there is a significant impact of oil price changes on Tobin's Q with a confidence level of 95%.

At a significance level of 0.05, the estimated coefficient for the independent variable EXP, non-oil exports, suggests that there is no significant impact of non-oil exports on Tobin's Q. The coefficient of the independent research variable was evaluated using a p-value of 0.4725, which exceeds the significance level of 0.05. Therefore, it can be concluded that non-oil exports do not have a statistically significant impact on Tobin's Q at a confidence level of 95%.

At a significance level of 0.05, the coefficient estimate of the independent variable INF represents the impact of inflation on Tobin's Q. The coefficient of the independent research variable has a p-value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that inflation has a statistically significant impact on Tobin's Q with a confidence level of 95%.

The coefficient estimate of the independent variable GAP, representing per capita income, reflects the impact of per capita income on Tobin's Q with a significance level of 0.05. The coefficient of the independent research variable was found to have a p-value of 0.0337, which is less than the significance level of 0.05. Therefore, it can be concluded that per capita income has a statistically significant impact on Tobin's Q with a confidence level of 95%.

The coefficient estimate of the independent variable EXR, pertaining to fluctuations in exchange rates, indicates the impact of such fluctuations on Tobin's Q, with a significance level of 0.05. The statistical significance of the independent research variable's coefficient is established as its p-value is below the threshold of 0.05 (0.0000).

The examination of the absence of autocorrelation in the residuals was conducted using the Durbin-Watson test. The coefficient of Durbin-Watson computed for the residuals (1.5435) between the values 1.5 and 2.5 suggests the absence of autocorrelation.

Conclusion

The purpose of this study was to examine the impact of macroeconomic variables on the performance of companies that are publicly traded on the Tehran Stock Exchange. The study on the impact of macroeconomic indicators, specifically changes in oil prices, inflation rates, and exchange rates, on the performance of the company has yielded significant results at a confidence level of 95%. These findings are in line with the research by Abbasian et al. (2008) and Torabi and Houman (2011). However, the impact of per capita income's macroeconomic index on a company's performance, as measured by economic added value, and the impact of the non-oil exports index on a company's performance, as measured by Tobin's Q and residual profit, are not found to be significant. Meanwhile, the impact of macroeconomic inflation on the performance of the company, as measured by shareholder value creation, is found to be insignificant.

The findings of the study on macroeconomic variables, including oil, non-oil exports, per capita income, and exchange rate fluctuations, indicate a statistically significant impact on shareholders' expected returns at a confidence level of 95%. These results are in agreement with previous research conducted by Ghalibaf Asl (2002), Karimzadeh (2006), Abbasian et al. (2008), Torabi and Houman (2011), Sajjadi et al. (2012), Reza Zadeh (2016), and Midsen (2002).

Based on the findings of a study examining the impact of oil variables (with a direct effect), non-oil exports (with a direct effect), inflation (with an inverse effect), and exchange rate fluctuations (with an inverse effect) on economic added value at a 95% confidence level, it was determined that there is a significant effect. However, the variable of per capita income was found to lack a significant impact on economic added value at the 95% confidence level. Hence, an increase in the volatility of both oil and non-oil exports leads to a corresponding increase in added economic value. However, a rise in inflation and exchange rate fluctuations results in a decrease in the added economic value. These findings align with the research conducted by Abbasian et al. (2008), Turabi and Homan (2011), and Martin (2003).

The present study pertains to individuals who intend to purchase stocks. It is advisable to prioritize macroeconomic indicators prior to investing in stocks, as these indicators possess the potential to influence the worth of companies and the anticipated returns of stockholders. Hence, it is advisable to consider macroeconomic indicators alongside corporate financial statements.

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