Investigating Effect of Oil Prices on Firm Value with Emphasis on Industry Type

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Abstract

The most important decision criterion for the investors and creditors to select the most appropriate investment option are stock price and firm value. Given the high dependence of Iran's economy to the oil industry and oil export, which constitute large portion of Iran's GDP, the purpose of this research is to study the impact of oil prices on the value of listed firms in Tehran Stock Exchange. In order to achieve this goal, a major hypothesis and three sub-hypotheses were formulated. To test the hypotheses, the Spearman's correlation test was used. In this study, to measure the value of the firm, three indicators are used: Tobin's Q, normalized price per share and the created value for shareholders. Target population of this study includes all listed companied in Tehran Stock Exchange. Using the systematic elimination sampling, 62 firms were included in the sample for this study. The research's period is from 2003 to 2013. About the impact of oil prices on the value of the firm, results of Spearman's correlation test does not confirm significant effect of oil prices on firm value. Based on Tobin's Q, oil prices was not influential on 12 industries of 16 industries and 34 firms of 62 firms. Based on normalized price per share, oil prices was not influential on 1 industry of 16 industries and 8 firms of 62 firms. Based on the created value for shareholders, oil prices was not influential on 2 industries of 16 industries and 8 firms of 62 firms.

Key words   Oil prices, firm value, Tobin's Q, created shareholder value, normalized price per share

1. Introduction

Achieving to the long-term and sustained economic growth requires the optimal allocation of financial resources in national economy level and without the help of financial markets, especially extensive and efficient capital market, will not be realized easily. In this respect, the stock exchange as a key element of the capital markets has an important role in collecting funds and transferring them to individuals and units requesting funds. Principally, the success of the stock market and its attractiveness to potential investors becomes possible through increased return and stock prices of companies listed on the stock exchange (Yahyazadefar, 2010).

In fact, changes in oil prices could affect stock prices and the firm value from two aspects: through its direct impact on stock prices, and through changing the price of the energy that economic units use. This effect consequently will transfer to the sum of costs, earnings of economic units and the earnings per share, which in turn will affect the buying and selling prices of stocks (Samadi, 2008).

Therefore, the present study through comprehensive review of the firms' accounting data aims to investigate the potential impact of oil price on the firm value among the listed firms in Tehran Stock Exchange. Also in this study, in order to quantify the company value, we have used three methods of Tobin's Q, the created shareholder value, and normalized price per share.

The stock prices is one of the most important financial information with widely use in economic decisions of stakeholders. With respect to the sensitivity and the wide dimensions of the application of stock price, recognition of influential factors and variables on the stock prices seem to be necessary. As it is

obvious, numerous factors including internal factors, economic factors, psychological factors, political factors and so on can influence on the prices and return of companies listed on the Stock Exchange. Oil prices including the economic factors that substantially affect stock prices. Despite the growth in non-oil exports of Iran in the past few decades as well as the development of new and advanced technologies, we must acknowledge the fact that the most important source of exchange earnings as well as the main source of providing energy for Iran is still oil industry. The fact is that the oil sector plays the dominant role in the economy of Iran and it also expects to be one of the influential factors on the economy in the future. So, it seems that understanding the effect of this variable and other macroeconomic variables on stock prices can determine the general trend of capital market evolution and to play a considerable role in predicting the behavior of the stock market and thus to provide the possibility of appropriate policy and decision making. Therefore, the present study through comprehensive review of the firms' accounting data aims to investigate the potential impact of oil price on the firm value among the listed firms in Tehran Stock Exchange. Also in this study, in order to quantify the company value, we have used three methods of Tobin's Q, the created shareholder value (CSV), and normalized price per share.

Given the fact that Iran is an oil-rich country and most of its earnings, about a quarter of the country's GDP, is dependent to the exports of oil and petroleum products, the great importance of oil sector and oil price changes in the country's economy is obvious. Therefore, any change in the oil price definitely affects other sectors of our economy, especially the Stock Exchange. Thus, considering the volatility of oil prices and the exchange rate as a moderating factor, in recent years, investigating the extent to which oil prices affect the firm value in Iran seems to be necessary. In the present research, the relationships between firm value, oil prices and the exchange rate are examined empirically through testing economic hypotheses. Thus, our results could be helpful for potential shareholders, actual shareholders, investors, creditors, the oil company and other beneficiaries of corporations in forecasting and taking the proper decision.

2. Theoretical Foundations

As mentioned above, the success of the stock market and its attractiveness to potential investors realizes through increased return and stock prices of the listed companies on the stock exchange. On the other hand, the fluctuations and volatility of these variables over time causes difficulty in decisions and economic forecasts investors and companies. In any investment, investors look for returns on their investment. So, they will try to get information from the future stock returns. Identification of the effects of influential variables on the stock prices and returns can guide investors in understanding the stock market mechanism and future planning.

2.1. Discounted Cash Flow

According to the definition by Fischer, a famous economist, from a purely materialistic view to the world, i.e. the world of money and capital, "the value of everything is equal to the present value of the cash flow resulting from it."

Many application researches in developed markets demonstrate that the stock price will fluctuate with changes in macroeconomic variables. Therefore, it is expected that stock prices index have a strong relationship with macroeconomic variables. The theoretical reason to consider such a relationship is that stock prices can be considered as discounted cash flows. It is clear that any economic variable that is able to influence on the expected cash flows or discount rates will also be able to influence on the stock prices (Cong *et al.*, 2008).

Stock value is equal to the sum of discounted value of future cash flows and these cash flows are subject to the macroeconomic events and thus they can also be influenced by oil prices. Iran as a major exporter of oil, in which government has the ownership on the oil resources, is being considered. These two features cause that the oil market evolutions to be reflected in the financial and budgetary policies of the country so that in times of rising oil prices, the exchange earnings from oil revenues would be deposited into the reserve exchange account and in the case of insufficient demand for the exchange at the desired price, the central bank will be forced to buy the currency and to convert it to Rial for being used in the budget. This policy will lead to the increased net foreign assets of the central bank as well as increase in the

monetary base of the country. If oil prices decline, because the government will not reduce their costs, it results in the deficit and government inevitably will borrow part of the deficit from the central bank. Thus, the net debt of government to the central bank increases and this in turn leads to the strengthening of the monetary base (Ebrahimi and Shokri, 2008).

Thus, in the case of either increasing or decreasing oil prices, the government's financial policy may raise the amount of money. In the case of increased liquidity due to reduced purchasing power of money, potentially this incentive among the financial investors creates that by revising in their property portfolio to maintain the value of their asset. Factors forming the portfolios of investors include currency, stocks, housing and so on. By increasing liquidity in the hand of financial investors and increased inflation followed by it, tendency to hold cash will lessen and therefore more capitals flow towards the asset markets. Asset markets, including stock market, are those with the ability to quickly converting the cash of investors to the securities and for this reason it is highly sensitive and impressible. In fact, reduction in oil prices causes that investment plans of firm be faced with uncertainty and since the company's profitability will be affected by oil earnings, stock prices could decline. On the other hand, if the price of oil and consequently country's earnings to increase, it causes the formation of optimistic expectations about the creation of prosperity and increasing activities to the profitability level, which leads to the positive growth of stock price index. Therefore, it is not improbable that oil shocks due to the shift in individuals' funds, to have a significant effect on this market (Ebrahimi and Shokri, 2008).

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2.2. The efficient market theory

Since 1965 in the field of finance, a hypothesis about the effectiveness of investment has been proposed and many researches have conducted to test this theory that whether the stock market in the collection and processing of entering data do act reasonably and whether information without hesitation and without any specific tendency reflects in the stock prices or not?

Efficient market is a market in which securities prices reflect all the known information immediately and accurately.

Efficient market (EM) is defined as a market in which all the available information about stock prices and firm values completely and quickly reflects. The concept of EM as a principal issue accepts that investors in their buying and selling decisions incorporate all the relevant information into prices. Therefore, the current price of a share reflects all the known data such as past data, e.g. revenues from the last season, and current data and information relevant to the already events as well as further events, e.g. share division. In addition, EM assumes those data that is logically deducible is reflected in current prices. For example, if investors believe that interest rates will decrease soon then prices will reflect this belief prior to its actual happening (Shahalizadeh, 2001).

In an efficient securities market, prices can properly reflect all information available in the market. In other words, efficiency defines in terms of data set. According to the efficient market assumption, we look at accounting of the view that accounting is in Competition with other sources of information such as news

media, attitudes, economic news, comments of financial analysts and even with market prices (Scott, 2011).

According to the above definitions, the stock price in an efficient market is a reflection of the available and in access influential data sets in the market, e.g. exchange rate and oil prices.

2.3. Investment risk

With consideration of portfolio theory and the theory of capital asset pricing, overall, risk can be divided into two types of systematic and unsystematic risk (Jahankhani, 1997).

However, in every economic system, there are some situations or events, which are called factor. These factors influences on the return on equity and stock prices. Examples of it include the level of interest rate, exchange rate, level of economic activity and so on. These are factors in the whole system of economy or in the whole market. Any risk arising from potential Foundation fluctuations in these factors is called systemic risk. In countries like Iran, where overall movement of economy is based on oil revenues, given the assumption that investors were assumed to be risk-averse, systematic risk can be partly reduced for investors in the Stock Exchange through determination of the effect of some macroeconomic variables such as oil prices and exchange rates on the firm values.

2.4. Information hypothesis

Decision making in economy requires access to three. These three things that constitute the foundation of any economic analysis include the possibility of identification of various available options, determining consequences of each option and finally determination of the optimal choice among them. But, following this process requires information and the lack of information makes the decision-making process unclear (Wallace, 1987).

Information is what that enables decision makers to confirm (strengthen) his/her mental beliefs or values about future returns on decisions (Scott, 2011).

According to the literature in finance, economic and accounting fields, benefits resulting from information may include reduced risk, improved quality of decision making and achievement to the efficiencies arising from trade of securities (Eugene et al.).

Information theory emphasizes on the necessary of presence of information to determine the market value of economic unit and finding a tool for rational decision making in investment area (Wallace, 1987).

Given the fact that any investment, including investment in shares of companies, is type of decision making, any decision making in economy requires information. Share price is important information for decision making on investment in the shares of companies. Therefore, understanding influential factors on it to make appropriate decisions seem to be necessary.

2.5. Individual theory

In decision making theory, the principle of individual rationality means that individual when deciding making to act such that to achieve to the highest expected utility. This means it is possible that he may seek to obtain additional information so that it is effective with respect to his desired decision and by using Bayes' theorem continuously to revise in his/her likely events. Information is a document or evidence that potentially influences on the individual's decision (Scott, 2011).

Oil prices and the exchange rate can be additional influential information for decisions of investors.

2.6. Firm value

The aim of corporations and their executives is to maximize the equity value, in other words to maximize the firm value and its stock (Namazi *et al.*, 2009).

The maximization of firm value depends upon the financial health of the firm, i.e. its financial resources (including long-term and current liabilities, and equity) are properly selected (supply task) and are correctly used in terms of current and long-term assets (application task).

Evaluation is essential in planning. Evaluation not only helps the manager in the selection of appropriate strategy and financial structure, but also it shows how the appropriate strategy and financial structure affect share market value. Firm value evaluation can also be influential on investment decisions

and can help manager to understand the progress in creating value. This way, manager can measure the success or failure of current strategies and financial structure. In addition, for most people, especially investors and shareholders of listed firms on the Stock Exchange, the interesting question is that how we can correctly measure the firm value. In practice, it claims that shareholders use inappropriate information and criteria in judging about the share value of firms. The lack of using appropriate criteria in measuring the firm value and the stock price of a firm cause the stock price of firm does not reflect the actual value. This phenomenon often leads to the loss of a group of purchasers of the shares and the great profit for another group. Therefore, in the following, after a brief explanation of the application, literature and the importance of determining the firm value, we investigate the criteria used in this study to measure the enterprise value.

2.6.1. Importance of firm value evaluation

Myers and Makluf (1984) state that if investors have low information about the true value of the firm, they may be unable to correctly decide about the firm's stock price. If the firm is forced to finance for its new projects by issuing shares, it is possible that firm is forced to issue the share prices less than the real market prices. This way, new investors may acquire a worth more than the net present value of the project, which result is the loss of the current shareholders. Therefore, in these cases, the firm is forced to ignore the acceptance and implementation of the investment projects that have positive net present value.

2.6.2. Application of firm value

In determining the firm value, the investor buys and sells the firm's securities and attempts to determine the market value of these securities. If a firm is going to maximize the wealth of shareholders, it must determine its targets such that to increase the investment demand by investors for the acquisition of shares and other securities of the firm. Such requests will increase the price of those securities in the market. One way to increase shareholder's wealth is through increasing the firm value and share's value. Therefore, the important point is that managers to consider those variables or factors that in the process of determining the value of securities are considered by investors.

2.6.3. Firm value evaluation approaches

2.6.3.1 Accounting approach

They are methods in which accounting data such as sales, earnings, dividends and earnings per share of cash flow are used for the evaluation.

2.6.3.2 Integrated approach

These methods use a combination of accounting and market data such as different versions of Tobin's Q and the ratio of market value to assess the firm value (Mehrani, 2010). All ratios that are known as the evaluation ratios fall into this category. These ratios by reasonable combination of risk and efficiency through market information as well as its combination with accounting information provide an appropriate basis for the evaluation of firm value. Among these methods are Tobin's Q and the normalized prices per share, which are discussed in the following:

-Normalized prices per share (NPPS): Demori *et al.* (2013) examined the relationship between income smoothing, the earnings quality and firm value in listed firms in Tehran Stock Exchange. Their results showed that investors give the highest value to the quality earnings smoother firms and the lowest value to the non-quality earnings non-smoother firms. In this study, the NPPS was used as an indicator of a firm's value. The NPPS is equal to the price per share at the end period divided by the price per share at the beginning of period.

-Tobin's Q: One of the important criteria for assessing the value of firms is Tobin's Q. This criterion was proposed in 1970s and was widely used by the researchers in 1980s and 1990s.

Tobin's Q ratio is equal to the market value of securities of firms of any kind and long-term debts plus the book value of short-term debt divided by the replacement value of firm's assets. It is noteworthy that the securities of common stock include preferred stock and all types of bonds issued by the firm. Tobin's Q was proposed by Professor James Tobin in macroeconomic analysis to predict future investment activities*.*

If Tobin's Q ratio is more than 1, this means that investment in assets leads to the earnings that their value is more their capital expenditures. Similarly, if Tobin's Q ratio is less than 1, this means that investment in assets rejects, because it leads to negligible efficiency (Salehi, 2002). James Tobin, winner of the Nobel Prize in Economic Sciences, developed Tobin's Q method. This ratio measures the relationship between the market value of a firm and its replacement value, i.e. the replacement cost of assets of a firm. Theoretically, in the long-term this ratio converges to one. However, empirical evidence suggests that at the same time this ratio significantly is different of the number one. For example, software firms with a high degree of intellectual capital has a ratio equal to seven or higher, while firms with high physical capital has a ratio close to one. Tobin's Q is very similar to the market to value ratio with the difference that when calculating Tobin's Q instead of using the book value of physical assets, the replacement cost of physical assets is used. The resulting ratio will be used such that if the Q ratio of a firm is greater than 1 and if it is greater than the competitive value of Q, then, the firm is able to acquire more earnings than the similar firms (Tobin, 1987).

$$Q = \text{Market Value} / \text{Asset Value} \tag{1}$$

Tobin's Q ratio over the years corrected and improved by many researchers and its defects eliminated. Some of the well-known modifications of Tobin's Q are as follows:

-Simple Tobin's Q,   -Standard Q,
-Lindenberg and Ross's Q,   -Lindenberg and Ross's adjusted Q,
-Chang and Pruitt's Q,   -Leewillen and Badernet's Q,

2.6.3.3 Financial management approach
It includes ratios that are used through the financial management data.

2.6.3.4 Economic approach
In this approach, economic concepts are used. These types of criterion are more economical than financial, because economic data are more frequently used in them. The performance of business units evaluates with respect to the rate of return and the rate of capital costs with emphasize on the profitability power of the firm's assets. The most important criteria in the evaluation of firm value using economic data include Economic Value Added (EVA), Refined Economic Value Added (REVA), Market Value Added (MVA) and Created Shareholder Value (CSV).

Created Shareholder Value (CSV): Shareholders are always looking for more efficiency, thus, accepting the risk of investing in shares of firms do invest in them. To get this aim, for the possibility of more consumption in the future they postpone the current consumption and if the rate of return on investment is more than the expected rate of return, the created value by that would increase, which this increased wealth calls "CSV" (Rahnamay Rudposhti, 2009).

The main goal of every organization is to create value for its owners. Certainly, the aim of investors from investing in a firm is getting a return proportional to their investment. If the firm or organization is successful in creating value, not only investors and people within the firms, but also in a wider level, the community will benefit of this value creation (Mehrani *et al.,* 2010).

With increasing global competition, businesses units to survive in the competitive environment have focused their efforts on creating value for shareholders. Accordingly, it is important for the businesses unit being able to measure the value they have created for their shareholders. Continuous efforts for creating value for shareholders every year enable business units to evaluate the previous decisions and make decisions that improve the value creation. Firms for many reasons employ a measurement system for the shareholder value. First of which, value is the best criterion for measuring the performance and value of the firm, because it is the only the measurement criterion that is comprehensive and is useful for decision-making. With increasing the value of shareholder, firms can maximize the value for all the beneficiaries including customers, employees, suppliers, government and investors. Second, shareholders are the only beneficiaries that simultaneously maximize the claim of parties who seek to maximize their wealth. Finally,

those businesses unit that cannot create value for their shareholders compared with those who created value for their shareholders will face with the loss of the flow of capital (Yeganeh *et al.,* 2009).

3. Literature review

Since Hamilton's study that indicated all economic recessions of United States after World War II have been due to rising oil prices, other studied like Burbridge and Harrison (1984), Loungani (1986), Gisser and Goodwin (1986) and Uri (1996) in a series of studies have examined the relationship between macroeconomic and oil price.

Huang *et al*. (1996) examined relationship between future daily returns of oil and daily returns of America stock using vector auto regression for the period 1979 to 1990. The results indicate that no relationship exists between the future price of oil and total stock return.

Jones and Kaul (1996) using simple regression models examined the effect of oil prices on stock returns in United States (1947-1991), Canada (1960-1991), Japan (1970-1991) and England (1962-1991) and found in all countries oil prices had a negative effect on stock returns.

Sadorsky (1999) examined relationship between oil prices and stock returns using monthly data for the United States of America in the years 1947-1996. His analysis showed that stock returns in the short term in response to increased oil prices had fallen.

Papapetrou (2001) used a Vector Error Correction Model (VECM) to examine the effect of oil prices on stock returns in Greece based on monthly data for the period 1989-1996. His analysis suggests that oil prices had a negative effect on stock returns in the first 4 months.

El-Sharif *et al.* (2005) examined the relationship between oil prices and stock values in the UK oil and gas sector by multi-factor model and daily data for the period 1989 to 2001. They found that the increase in oil prices will increase efficiency of oil and gas markets.

Park and Ratti (2008) conducted a study to assess the effect of oil price shocks on the stock market in the United States and 13 European countries. They used vector autocorrelation multivariate model and concluded that during January 1986 to December 2005, oil shocks had significant effect on real stock returns of countries those were studied and that those shocks were a justified reason for 6% variation in the real stock returns.

Elmir and Sabo (2008) in a study about corporate governance investigated the relationship between EVA and CSV and concluded that EVA is not an appropriate parameter because it cannot explain CSV. Using regression analysis, they found that convergence or divergence of EVA and CSV could be explained widely through corporate governance criteria such as the characteristics of the Board, auditors, share ownership of the executive members, institutional ownership and composition of remuneration.

Sameti *et al.* (2008) examined the relationship between firm value and inflation rate for firms operating in Tehran Stock Exchange during the period 1995 to 2005. Based on the results, the effect of inflation on the value of the firms was not significant.

Yeganeh *et al*. (2009) examined the relationship between institutional investors and the value of firms in Iran. To test their hypothesis and to determine the firm value, they used multiple linear regression and CSV, respectively. The results of their research showed a positive relationship between institutional investors and the firm value.

Namazi *et al*. (2010) studied the function of Tobin's Q ratio and compared it with other measures of performance management in listed firms in Tehran Stock Exchange during the years 2002 to 2006. Based on the average Tobin's Q calculated for each industry, they showed using Tobin's Q ratio for the listed firms in Tehran Stock Exchange is not suitable. In addition, Tobin's Q ratio is significantly correlated with measures such as the share price, return on assets and earnings per share and is not significantly correlated with measures such as the current and quick ratios, asset turnover, the remaining earnings, sales growth, earnings growth, operating earnings and sales. Investigating Tobin's Q in various industries, they found that the automotive and textile industries had the highest and the lowest value for Tobin's Q, respectively.

Narayan and Narayan (2010) examined the relationship between stock prices and oil prices in Vietnam, according to daily data from 2000 to 2008 and concluded that stock prices, oil prices and the nominal exchange rate are co-integrated. They concluded that both oil prices and the exchange rate in the

long term have significant positive effect on the stock price. Also, in the short term came to the conclusion that neither price nor exchange rates has significant effect on stock returns.

Mashe *et al.* (2011) during their research investigated oil price variations and stock price changes. The main objective of this study was to investigate the effect of variations in oil prices during the financial crisis in South Korea. In this study, the relationship between interest rates economic activities, real stock returns, real oil prices and oil price variation studied using a VECM. The results of this study showed that the oil price changes are effective on stock market index.

Daghr and El Hariri (2013) in a study about the effect of global oil price shocks in stock markets of Lebanon investigated the dynamic relationship between oil prices and the stock market during 2006 to 2012 and using VAR framework examined the dynamic interaction between the daily price of Brent crude oil and Lebanon's stock price. The results showed that the effect of oil price shocks on the stock market in Lebanon is positive but marginal.

Baradaran Hasanzadeh *et al.* (2013) investigated the relationship between some corporate governance mechanisms considering the created value for shareholders and the economic value added for the years 2007 to 2011. In the study, the value created for shareholders using the Fernandez model and the economic value added using the model proposed by Stewart were measured. The results showed that from eight mechanisms of corporate governance in the study, four mechanisms, including the amount of government's influence and ownership, the ownership of institutional shareholders, capital structure, and the amount free-floating shares, were related to the value created for shareholders. As well as from eight corporate governance mechanisms examined in this study, three mechanisms, including the amount of government's influence and ownership, the ownership amount of institutional shareholders, and the amount free-floating shares, were related to the economic value added.

Shariati *et al.* (2013) in a study by investigating the effect of long-term relationship of variations of stock index and oil prices on the economic growth of countries participating into the D-8 Group, examined relationships between variables such as oil price changes, interest rate, changes in stock index and GDP in D-8 countries for the period 2000 to 2010. In this study, Johansson and VECM methods were used for data analysis. The results suggest that increased oil prices leads to the increased production. This suggests that increased production of member countries is due to the oil exporting or oil derivatives with high added value.

Lang *et al.* (1994) using Tobin's Q examined the effect of diversification on the firm value for the period 1983 to 1990 and found a direct relationship between Tobin's Q and firm value.

Reboredo *et al*. (2014) analyzed relationship between oil prices and stock prices using wavelet-based evidences over stock markets in Europe and the United States during the years 2000 to 2011 and by wavelet analysis concluded that there is a mutual relationship between oil prices and stock prices.

Kang *et al.* (2014) in a research about the effect of oil price shocks on the bond returns in the United States bond market evaluated effect of the shocks of world crude oil market on the index of bonds in United States of America between years 2001 and 2011. In this study, to identify the interdependence between the oil market and bond market the SVAR model was used. The results showed that a positive shock to oil markets results in a substantial decline in the total real return index of for bonds 8 months after the shock has occurred.

Sukcharoen *et al.* (2014) in a study about interdependence of oil prices and stock market indices investigated the relationship between oil prices in different countries and stock market index in international stock markets between the years 1982 to 2007. In order to involve the effects of the exchange rate, oil price series was calculated using the local currency rate. Research findings often suggest a poor correlation between oil prices and the stock index. Major oil-producing countries, e.g. United States and Canada, are excluded from these results so that the returns of the stock index have a relatively strong correlation with the oil price series.

Martinez *et al.* (2014) in a study about the oil price risk in the Spanish stock market with an emphasis on industry type examined Spain's stock market reaction to the oil price movements over the period 1993-2010. The results show that Spanish industries partly influence by the oil prices, although there were significant differences in all industries.

Zhu *et al.* (2014) in a study entitled "Modeling dynamic dependence between crude oil prices and Asia-Pacific stock market returns" studied the dynamic dependence between the price of crude oil and stock market in 10 countries from Asia and Pacific Ocean during the years 2000-2012. They used AR (p)-GARCH and T model for marginal distributions and the conditional model of Copula for variables with joint distribution. The results showed that dependence between crude oil prices and Asia-Pacific stock markets returns, which before the global financial crisis were positive, generally is weak, except in Hong Kong that after the crisis has significantly increased. Also, the results for the period after the world crisis suggest reduced dependence between oil prices and stock markets in Asia-Pacific countries except for Japan and Singapore.

4. Research hypotheses

Given the literature of domestic and international researches, the most import question in this research is that: has the oil price significant effect on the firm value?

According to the above question, the following hypotheses are presented:

1. Oil prices have significant effect on the value of listed firms in Tehran Stock Exchange.

The sub-hypotheses derived from the second main hypothesis

2.1. The oil price is influential on the firms' Tobin's Q.

2.2. The oil price is influential on the NPPS.

2.3. The oil price is influential on CSV.

5. Research variables and how to measure them

Given the fact that research hypotheses are analyzed using regression models, research variables are divided into three groups: dependent, independent and control variables. Also, in order to normalize research variables, the natural logarithm is used.

5.1. Independent variable

The independent variable in this study is oil price, which is obtained through OPEC database.

5.2. Dependent variable

The dependent variable of the study is the firm value. To measure the firm value, three indicators including Tobin's Q, NPPS, and the CSV are used. To provide data, information contained in the financial statements and databases of stock exchange were used.

5.2.1. Tobin's Q

In this part of study, the relationship between Tobin's Q as an indicator of the firm value with oil prices in investigated. Tobin's Q is equal to the market value of the firm divided by the book value of the firm's assets. Book value, i.e. depts. and assets, and market value, i.e. the product of exchange price of stocks and the number of shares, are extracted from the financial statements of firms listed in Tehran stock exchange and the data released on the stock exchange's panel, respectively. Tobin's Q can be calculated using the following formula (Noroosh, 2011).

$$\text{Tobin's Q} = \frac{\text{Depts book value} + (\text{number of shares} \times \text{stock exchange price})}{\text{Assets book value}} \quad (2)$$

(Hajiha *et al.*, 2011)

$$Q = \frac{M.V.S + B.V.D}{B.V.A} \quad (3)$$

(Hajiha *et al.*, 2011)

5.2.2. NPPS

NPPS is the end of period price divided by beginning of period price per share (Demori *et al.*, 2013).

5.2.3. CSV

Return rate of a security is the main factor in selecting investment option. If the rate return of investments is greater than the expected rate of return, value of the investment assets increases and more wealth creates. This increase in created value is called created shareholders value (CSV). Fernandez (2001) proposed this criterion for determining the value of firms (Baradaran Hasanzadeh *et al.*, 2013).

$$\text{CSV} = \text{value added of shareholders} - (\text{common stock cost} \times \text{equity market value}) \qquad (4)$$

(Baradaran Hasanzadeh *et al.*, 2013)

$$\text{shareholders value added} = \text{increase in equity market value} - \text{ payments to shareholders} + \text{distributed cash flow} \quad (5)$$

(Baradaran Hasanzadeh *et al.,* 2013)

Shareholders are always looking for more efficiency, hence, accepting the investment risk in shares of firms do invest in them and for the possible more use in the future postpone the current consumption. If the rate of return on an investment is greater than the expected rate of return on it, its created value will increase and this increase in the wealth is called "create value for shareholders" (Rahnamay Rudposhti, 2009).

5.3. The control variables

The main control variable in this study is the daily rate of exchange, i.e. Rials, which is available in the database of the central bank its impact on the firm value is controlled.

In this study, other controlling variables such as natural logarithm of net income before taxes lnNI, natural logarithm of the dividend per share lnDPS, natural logarithm of financial leverage lnFL, and natural logarithm of total assets (the firm size) lnTA are also used.

6. Research's methodology

The present study sought to investigate the role of oil prices on the value of manufacturing firms. Therefore, in terms of purpose, it is application and in terms of the implementation strategy, it is descriptive and finally in terms of examining the relationship between variables, it is of the correlation type or cause and effect. In addition, given the fact that it uses the past data of firms for the analysis of hypotheses, the present study in terms of the nature of data is post event.

6.1. Target population

Target population includes all listed companies on Tehran Stock Exchange since the beginning of April 2012 till the end of March 2012. The systematic elimination method was used for sampling and the applied criteria for the selection of sample are as follows:

1. The end of the fiscal year should be the end of calendar year. This increases or maintains the capacity for comparing obtained financial information.
2. Companies should be manufacturing.
3. During the study period, no trading interruption more than three months could have occurred.
4. Financial information needed for study in the period April 2003 to March 2012 should have been presented to the Tehran Stock Exchange and they should be available and accessible.
5. During the study period, no change in the financial year is allowed.
6. During the study period, company should not experience losing.

Subject to the above restrictions, 62 companies listed on Tehran Stock Exchange were selected.

6.2. Data collection and analysis

Collecting data method was library and the required data of research literature was extracted from Persian and Latin books and journals as well as articles extracted from Internet. Also, much of the information and data needed to test research hypotheses were extracted from the audited financial statements of studied companies. Another part of information provided from the databases of the Central

Bank and Stock Exchange databases, OPEC database, oil ministry databases, as well as Rahacard Novin and Tadbirpardaz software. Then, by using EViews desired tests were performed.

6.3. The model of impact of oil prices on the value of the firm is as follows:

6.3.1 Model 1: Test model of the impact of oil prices on Tobin's Q

$$lnQ_t = \alpha_0 + \alpha_1 \ln OILP_t + \alpha_2 \ln ER_t + \alpha_3 \ln NI_t + \alpha_4 \ln DPS_t + \alpha_5 lnFL_t + \alpha_6 \ln TA_t + \varepsilon_t \quad (6)$$

6.3.2 Model 2: Test model of the impact of oil prices on the NPPS

$$PPS_t = \alpha_0 + \alpha_1 \ln OILP_t + \alpha_2 \ln ER_t + \alpha_3 \ln NI_t + \alpha_4 \ln DPS_t + \alpha_5 lnFL_t + \alpha_6 \ln TA_t + \varepsilon_t \quad (7)$$

6.3.3 Model 3: Test model of the impact of oil prices on the shareholders created value

$$\ln SCV_t = \alpha_0 + \alpha_1 \ln OILP_t + \alpha_2 \ln ER_t + \alpha_3 \ln NI_t + \alpha_4 \ln DPS_t + \alpha_5 lnFL_t + \alpha_6 \ln TA_t + \varepsilon_t \quad (8)$$

7. Descriptive statistics

First, descriptive statistics for the variables of interest and then research hypotheses were tested.

Table 1. Descriptive statistics of the variables in the firm level

Variables	symbol	Number	minimum	maximum	average	SD
Tobin's Q	Q	558	0.51	11.80	1.59	1.15
NPPS	NSP	558	0	5.28	1.02	0.54
Normalized CSV	NCSV	558	-2.72	3.31	0.0038	1.00
Firm size	SIZE	558	10.43	18.43	13.19	1.43
Financial leverage	FL	558	0.61	5.54	1.70	0.56
Dividend	DPS	558	0	7299.95	786.08	948.80
Net income/assets	NI/asset	558	0	0.70	0.1727	0.13
Oil price	OILP	558	28.04	111.03	67.04	23.82
Exchange rate (Rials)	ER	558	8280.40	10962.35	9475.58	780.69

Table 2. Descriptive analysis at the level of industry

Variables	Symbol	Number	minimum	maximum	average	SD
Tobin's Q	Q	144	0.71	9.57	1.56	1.008
NPPS	NSP	144	0.2	4.40	1.038	0.4962
Normalized CSV	NCSV	144	-2.63	3.09	0.043	1.056
Firm size	SIZE	144	10.45	15.77	12.92	1.08
Financial leverage	FL	144	1.19	3.27	1.74	0.40
Dividend	DPS	144	0	5850	820.86	802.09
Net income/assets	NI/asset	144	0.03	0.51	0.17	0.10
Oil price	OILP	144	28.05	111.04	67.04	23.88
Exchange rate (Rials)	ER	144	8280.41	10962.35	9475.59	782.57

Descriptive statistics of the research about firm's level in Table 1 and descriptive statistics for the industry level in Table (4.2) are presented. According to the data in these tables, Tobin's Q at the industry level is at least 0.71 and at most 9.57, with the mean of 1.56 and standard deviation of 1. The same values for Tobin's Q at the firm level are at least 0.51, at most 11.8, the mean of 1.59 and the standard deviation of 1.15, in order. Tobin's Q for the variable of NPPS at the industry level is at least 0.2 and at most 4.4, with mean of 1.03 and the standard deviation of 0.49. Similar values for the firm level are at least 0 and at most 8.28, with the mean of 1.02 and the standard deviation of 0.54. The natural logarithm of CSV at the industry level is at least -2.63 and at most 3.09, with the mean of 0.04 and the standard deviation of 1.05. Similar values for the firm level are at least -2.72 and at most 3.31, with the mean of 0.0038 and the standard deviation of 1. Oil prices are the lowest price and the highest price has been 28.04 Rials and

111.03 Rials, respectively. Average and the standard deviation of price in the study period were 67.04 Rials and 23.87 Rials, respectively. Stock index during the study period was at its lowest and highest values 8708.11 and 25405.44, respectively, with the mean of 12850.08 and the standard deviation 5062.44. Exchange rate (Rial) during the study period had the lowest and highest values of 8280.41 Rials and 10,962.34 Rials, respectively, with the mean of 9475.59 and the standard deviation of 782.57.

8. Research's findings

8.1 Research's hypothesis: oil price is influential on the firm value.

The hypothesis is about the effect of oil prices on the value of the under the study firms, which is tested using Spearman's test and finally using the results of the main hypothesis will be concluded.

- **Spearman's test**

Charles Spearman (1945-1863), English psychologist and statistician, proposed Spearman's Rank Correlation Coefficient in 1904. The coefficient indicates the amount of correlation between two ordinal variables. In other words, it is corresponding to the Parametric Pearson Correlation Coefficient. Spearman's Rank Correlation Coefficient uses rank of variables instead of their values and can be calculated using the following equation: When data are collected based on their rank or they are converted to ranks, then, Spearman's rank correlation (rs), which is one of nonparametric methods, can be used. One advantage of Spearman's correlation coefficient compared to that of Pearson is that if one or more data compared to other data are very larger, since it uses the rank of variables and not their values, other data would not be affected significantly. To calculate the rank correlation coefficient of the ordered pair data, i.e. (x_i, y_i), first we rank x and y based their values and then we calculate the difference between ranks of each pair, i.e.d. The next step is to calculate the rank correlation coefficients based on the following formula (Behboodian, 2005). Logarithmic variables of indices of stock price, oil price and exchange rate during the April 2003 - March 2012 in Graphs 1, 2 and 3 are shown. Graphs show that variations of these variables are generally incremental and of the direction.
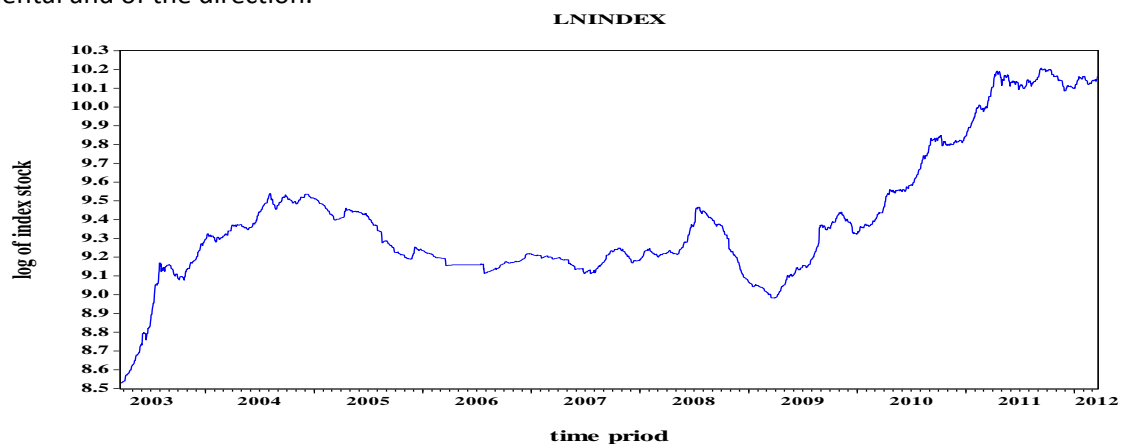

*Figure 1.*The natural logarithm of the stock price index

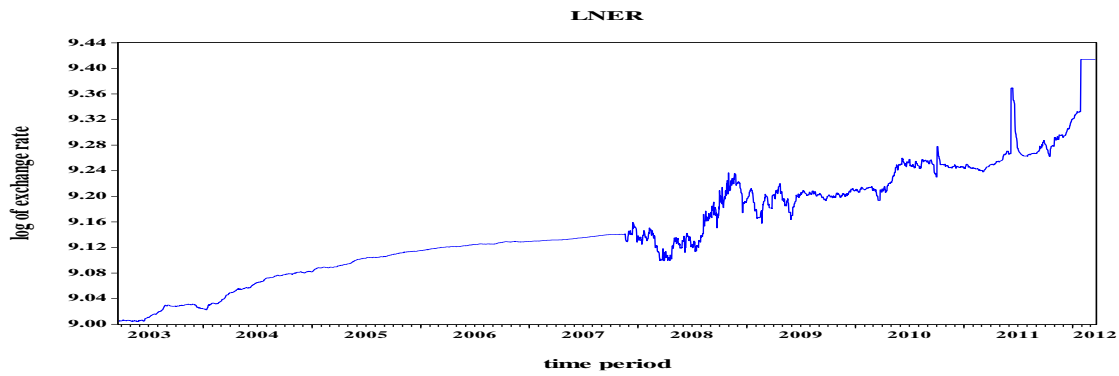*Figure 2.* The natural logarithm of the oil price

Figure 3. The natural logarithm of the exchange rate

In this research, we studied variables in firms against firms and in industries against industries. In other words, in this study, the differences between the two study groups are studied. Hence, the Spearman test is used in this type of research. The hypothesis about the effect of oil prices (OILP) on the value of the firm (V) is issued and using the following sub-hypotheses is tested. Finally, using the results of the sub-hypotheses about the main will be concluded. The detailed results of the second sub-hypothesis at the industry level are as shown in Table 3.

Table 3. Results of the second sub-hypothesis testing at the industry level

Row	Industry Name	CSV	NSP	Q
1	Automotive and Parts	-0.35	-0.167	-0.683*
2	Medication	0.5	0.167	-0.717*
3	Electric devices	-0.383	0.383	- **0.850
4	Other Non-Metallic Minerals	0.867	0.633	-0.167
5	Other mines	-0.133	-0.133	-0.183
6	Cement, Lime, Gypsum	0.283	-0.083	- **0.917
7	Chemical	-0.483	-0.2	-0.850**
8	Food except sugar	-0.617	-0.017	-0.833**
9	Manufacture of basic metals	0.05	0.15	-0.683*
10	Sugar	0.3	0.117	0.767*
11	Ceramic tiles	0.717*	0.850**	-0.317
12	Plastic and rubber	0.3	-0.067	-0.667*
13	Machinery and equipment	0.267	0.533	-0.800**
14	Wood Products	-0.167	-0.301	-0.833**
15	Metal products	0.383	0.033	-0.1
16	Nuclear, Petroleum, Coke	0.133-	-0.067	-0.800**

** Significant at the level of 0.01
* Significant correlation at the level of 0.05

8.1.1 Analysis of the sub-hypothesis 1.1

Sub-hypothesis 1.1: oil price is influential on Tobin's Q of firms.

The hypothesis is about the effect of oil prices on Tobin's Q of firms as an indicator of the firm value and is tested using Spearman's correlation coefficient.

Summary results of testing the first sub-hypothesis are presented in Table 4.

Table 4. Summary results of testing the sub-hypothesis 1.1

Estimation period- 2003-2013		
Dependent variable (Tobin's Q)		
Results of test at the level of industries		
%99	%95	
7	12	Significant
9	4	Non-significant
16	16	Sum of industries
%43/75	%75	Percent of significance
Results of test at the level of firm		
%99	%95	
15	34	Significant
47	28	Non-significant
62	62	Sum of firms
%24/19	%54/84	Percent of significance

Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

Given the test statistic and the probability associated to it, which is less than 0.05, Spearman's correlation test results show no significant relationship between the oil price and Tobin's Q of all firms as an indicator of the firm's value. Whereas investigating the relationship between the oil price and average Tobin's Q of each firm, it was found that oil prices affect the average Tobin's Q of 12 industries of 16 examined industries. In addition, investigating the relationship between the oil price and average Tobin's Q of each firm, it was found that oil prices affect the average Tobin's Q of 34 firms of 62 tested firms. Thus, the assumption of a linear relationship between the dependent and independent variables in 12 industries of 16 manufacturing industries as well as in 34 firms of 62 firms confirms. Thus, we can conclude that at the confidence level of 95%, the correlation coefficient is significant in 12 industries of 16 industries as well as in 34 firms of 62 firms.

8.1.2 Analysis of sub-hypothesis 1.2
Sub-hypothesis 1.2: oil price is influential on NPPS.

This hypothesis investigates the effect of oil prices on NPPS as an indicator of the firm value and is tested using Spearman's correlation coefficient*.*

Summary results of testing the sub-hypothesis 1.2 are presented in Table 5.

Table 5. Summary results of testing the sub-hypothesis 1.2

Estimation period- 2003-2013		
Dependent variable (Tobin's Q)		
Results of test at the level of industries		
%99	**%95**	
1	1	Significant
15	15	Non-significant
16	16	Sum of industries
%6/25	%6/25	Percent of significance
Results of test at the level of firm		
%99	%95	
2	8	Significant
60	54	Non-significant
62	62	Sum of firms
22/3**%**	%12/90	Percent of significance

- Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

Given the test statistic and the probability associated to it, which is less than 0.05, Spearman's correlation test results show no significant relationship between the oil price and NPPS of all firms as an indicator of the firm's value. Whereas investigating the relationship between the oil price and average NPPS of each firm, it was found that oil prices affect the average NPPS of 2 industries of 16 examined industries. In addition, through investigating the relationship between the oil price and average NPPS of each firm, it was found that oil prices affect the average NPPS of 8 firms of 62 tested firms. Thus, the assumption of a linear relationship between the dependent and independent variables in 2 industries of 16 manufacturing industries as well as in 8 firms of 62 firms confirms. Thus, we can conclude that at the confidence level of 95%, the relationship between the dependent and independent variables in 2 industries of 16 industries as well as in 8 firms of 62 firms is significant.

8.1.3 Analysis of sub-hypothesis 1.3

Sub-hypothesis 1.3: oil price is influential on CSV.

This hypothesis investigates the effect of oil prices on CSV as an indicator of the firm value and is tested using Spearman's correlation coefficient and the following model

Summary results of testing the sub-hypothesis 1.3 are presented in Table 6.

Table 6. Summary results of testing the sub-hypothesis 1.3

Estimation period- 2003-2012		
Dependent variable (Tobin's Q)		
Results of test at the level of industries		
%99	%95	
1	2	Significant
15	15	Non-significant
16	16	Sum of industries
%6/25	%12/50	Percent of significance
Results of test at the level of firm		
%99	%95	
5	8	Significant
57	54	Non-significant
62	62	Sum of firms
06/8**%**	%12/90	Percent of significance

Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

Given the test statistic and the probability associated to it, which is less than 0.05, Spearman's correlation test results show no significant relationship between the oil price and CSV of all firms as an indicator of the firm's value. Whereas investigating the relationship between the oil price and average CSV of each firm, it was found that oil prices affect the average CSV in industry of 16 examined industries. In addition, investigating the relationship between the oil price and the average CSV of each firm it was found that oil prices affect the average CSV of 8 firms of 62 tested firms. Thus, the assumption of a linear relationship between the dependent and independent variables in 1 industry of 16 manufacturing industries as well as in 8 firms of 62 firms confirms. Thus, we can conclude that at the confidence level of 95%, the relationship between the dependent and independent variables in 1 industry of 16 industries as well as in 8 firms of 62 firms is significant.

8.2 Analysis of the main hypothesis

The main hypothesis: oil price is influential on the firm value.

This hypothesis investigates the effect of oil prices on the firm value and it is tested using the above sub-hypotheses. The results are presented in Table 7.

Table 7. Summary results of testing the main hypothesis

Variables	At firm level		At industry level	
	Number	Percent	Number	Percent
Tobin's Q	12	75	34	54/84
CSV	1	6/25	8	12/9
PPS	2	12/5	8	12/9
Confidence level	*%95*		*%95*	

Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

As can be seen, at the confidence level of 95%, Spearman's correlation test results show no significant relationship between oil prices and the firm value in all firms and industries with respect to three valuation methods of firm value. Whereas investigating the relationship between the oil price and the firm value of each firm, three valuation methods of Tobin's Q, NPPS and CSV show the impact of oil prices on the firm value in 12, 1 and 2 industries of the 16 industries, respectively. In addition, studying the relationship between oil prices and the value of each of firms by using three valuation methods, i.e. Tobin's Q, NPPS and CSV, show the impact of oil prices on the firm value in 34, 8 and 8 firms of 62 firms. As results of investigations by using three methods of firm value pricing show, using Tobin's Q a higher percentage of firms and industries show significant relationships with oil prices. In addition, the difference between results of these three methods indicates that in two methods of the firm value valuation, i.e. NPPS and CSV, oil prices play a positive role. Whereas in Tobin's Q method unlike other two methods, except for two firms of industries and firms, the oil price plays a negative role.

8.3. Analysis of the impact of control variables on firm value

Test results of control variables of the research and their impact on firm value in each of the three methods of valuation, i.e. Tobin's Q, CSV and NPPS, at the level of each of firms and at the industry level are presented in tables 8 and 9.

As results and figures of Table 8 show, none of these control variables has significant relationship with firm's value of all firms with none of the three indicators of firm value valuation. Nevertheless, the same results show a significant association between control variables and indexes of firm value in a number of firms. For example, examining the relationship between the exchange rate and the firm value of each of firms, results show that the exchange rate is influential on Tobin's Q, NPPS and CSV, in 31, 6 and 6 firms of the 62 tested firms.

Table 8. Summary results of testing control variables at the firm level

Control variables	CSV	NPPS	obin's Q
exchange rate	6	6	31
Firm size	5	5	27
Net earnings	6	6	16
Dividend	7	5	13
Financial leverage	8	8	10

- significance level is 95%
- Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

As the results and figures in Table 9 show, none of the control variables has significant relationship with the firm value of all firms with respect to all three indicators of firm valuation. Nevertheless, the results indicate significant correlation of the control variables with the indexes of firm value in a number of firms. For example, examining the relationship between the exchange rate and the firm value of each of firms, results show that the exchange rate is influential on Tobin's Q, NPPS and CSV, in 31, 6 and 6 firms of the 62 tested firms.

Table 9. Summary results of testing control variables at the industry level

Control variables	CSV	NPPS	Tobin's Q
exchange rate	2	2	11
Firm size	2	2	9
Net earnings	2	1	6
Dividend	1	2	5
Financial leverage	1	1	2

- significance level is 95%

- Numbers in each column show the number of firms that for them there is significant relationship between control variables of each row with firm value indicators.

As the results and figures in Table 9 show, none of the control variables has significant relationship with the firm value of all firms with respect to all three indicators of firm valuation. Nevertheless, the results indicate significant correlation of the control variables with the indexes of firm value in a number of firms. For example, examining the relationship between the exchange rate and the firm value of each of industries, results show that the exchange rate is influential on Tobin's Q, NPPS and CSV, in 6, 1 and 2 industries of the 62 tested industries.

Spearman's correlation test results show, none of the control variables in all industries has significant relationship with variables representing the firm value. However, in some industries, this relationship is significant. In addition, the results show that the relationship between Tobin's Q and controlling variables compared to other dependent variables is of a higher percentage. The highest significant correlation and the effectiveness of the control variables were reported for the relationship between exchange rates and Tobin's Q. In addition, the effect of control variables on Tobin's Q in almost most cases has been a negative relationship, whereas in other two cases, i.e. CSV and NPPS, the effect has been often a positive impact.

In the following, summary results of testing the research hypotheses are presented in tables 10-12.

Table 10. Summary results of testing the second hypothesis at the industry level

Result	Hypothesis
Does not reject in 12 industries of 16 industries	1.1 Oil price is influential on Tobin's Q of firms.
Does not reject in 1 industries of 16 industries	1.2 Oil price is influential on NPPS.
Does not reject in 2 industries of 16 industries	1.3 Oil price is influential on Tobin's Q of firms.

Table 11. Summary results of testing the second hypothesis at the firm level

Result	Hypothesis
Does not reject in 34 industries of 62 firms	1.1 Oil price is influential on Tobin's Q of firms.
Does not reject in 8 firms of 62 firms	1.2 Oil price is influential on NPPS.
Does not reject in 8 firms of 62 firms	1.3 Oil price is influential on Tobin's Q of firms.

Table 12. Summary overall results of testing the hypotheses

Result	Hypothesis
Reject	1- Oil price is influential on firm value.
Reject	1.1 Oil price is influential on Tobin's Q of firms.
Reject	1.2 Oil price is influential on NPPS.
Reject	1.3 Oil price is influential on Tobin's Q of firms.

9. The analysis of results

The main hypothesis tests the effect of oil prices (OILP) on the value (V). The hypothesis investigates the relationship between oil prices and the variables representing the firm value such as Tobin's Q index,

NPPS and CSV. The results showed a positive correlation between oil prices and stock price indices so that with increasing the oil prices the stock prices will also increase.

9.1. The main hypothesis and its related sub-hypotheses

In the main hypothesis, the relationship between oil prices (OILP) and the firm value (V) along with the sub-hypotheses and the relationship between oil prices (OILP) with three indicators of Tobin's Q index, NPPS (PL) and CSV (CSV) both separately and simultaneously at all three levels of firms, at the level of each firm as well as at the level of tested industries were investigated. In this study, in addition to the overall examination of the impact of oil prices on firm value, we have also used the method proposed in Sameti *et al.* (2010) for each of firms and the method proposed in Namazi *et al.*, i.e. the use of the average value of the firm per industry, for assessment at the level of industries.

In the main hypothesis, the relationship between oil prices and the variables representing the firm value such as Tobin's Q, CSV (CSV) and NPPS (PL) were proposed and tested. According to the results, a positive and significant relationship between oil prices and variables representing the firm value including Tobin's Q, CSV (CSV) and NPPS (PL) in none of firms was confirmed.

To the best knowledge of authors, the hypotheses examined in this study are not tested in the previous researches. Thus, it is possible to compare the results of the study with those of similar researches. However, since the price of oil is a macroeconomic variable, we can consider the results of researches that examine the relationship between macroeconomic variables and the firm value as the evaluation benchmark. The results of this study with those obtained by Sameti *et al.* (2010) about the relationship between inflation and the firm are consistent.

9.1.1. The first sub-hypothesis

This sub-hypothesis suggests that the oil price has no positive and significant relationship with Tobin's Q of all firms. According to the results of the analysis of data and the significance level between oil prices and Tobin's Q, significance of these variables according to item (4) of the presented hypothesis were approved only for 12 industry of the 16 industries as well as for only 34 firms of 62 firms. Results of testing hypothesis showed that oil price has significance relationship with Tobin's Q in many industries and firms. These results confirm that oil price in 12 industries of 16 industries, which have significant correlation with Tobin's Q, play a negative role, i.e. with increasing the oil prices, Tobin's Q of these industries will decrease. Also, the oil price in 34 firms, except for Iran Transfo and Gorji biscuits, of 62 firms, which have significant correlation with Tobin's Q, play a negative role, i.e. with increasing the oil prices, Tobin's Q of these industries will decrease. Thus, when the oil price growth trend is positive, it can be expected that the value of these firms and industries (Tobin's Q) to decrease.

9.1.2. The second sub-hypothesis

This sub-hypothesis suggests that oil price has no positive and significant relationship with the NPPS of all firms. According to the results of the data analysis and the significance level between the oil prices and the NPPS the positivity of coefficients as well as the significance of these variables according to item (5), the proposed hypothesis only for 1 industry, i.e. ceramic tile industry, of 16 industries and 8 firms of 62 firms were approved. The results of the sub-hypothesis showed a significant positive correlation between oil prices and NPPS in ceramic tile industry as well as other 8 firms. This result confirms that oil prices in the ceramic tile industry has a significant correlation with the NPPS and plays a positive role, i.e. with increasing the oil prices, NPPS of this industry will increase. Moreover, oil prices in 8 firms of 62 firms, which have significant relationship with the NPPS, play a positive role, i.e. with increasing the oil prices, NPPS of these firms will also increase. Thus, when the oil price growth has a positive trend, then, we can expect the increased value of these firms as well as the ceramic tile industry (NPPS).

9.1.3. The third sub-hypothesis

This sub-hypothesis suggests that oil price has no positive and significant relationship with the CSV of all firms. According to the results of the data analysis and the significance level between the oil prices and the CSV and the positivity of coefficients as well as the significance of these variables according to item (6),

the proposed hypothesis only for 2 industries, i.e. ceramic tile industry and other non-metallic minerals, of 16 industries and 8 firms of 62 firms were approved. The results of the sub-hypothesis also showed a significant positive correlation between oil prices and CSV in ceramic tile industry and other non-metallic minerals as well as 8 other firms. This result confirms that oil price in the ceramic tile industry has a significant correlation with the CSV and plays a positive role, i.e. with increasing the oil price; the CSV of these two industries will also increase. Moreover, oil prices in 8 firms of 62 firms, which have significant relationship with the CSV, play a positive role, i.e. with increasing the oil prices, CSV of these firms will also increase. Thus, when the oil price growth has a positive trend, then, we can expect the increased value of these firms and industries (CSV).

10. Suggestions

According to the results of research, suggestions are proposed for future research as follows.

10.1. Recommendations based on research's results

It suggests to the Stock Exchange Organization as the trustee of the capital market that at the beginning of each year based on the estimated prices of domestic and foreign references to examine the potential impact of oil prices on the firm value. This way, they can through identifying the unfavorable side effects of the oil price on the firm value to devise strategies to deal with them. In addition, identifying possible impacts of oil prices on the stock market, it can help those using this information more easily to use these variables in their decisions.

Given the positive impact of oil prices on the value of some firms and the importance of oil prices on the economy of Iran from the viewpoint of analysts and decision makers of capital market, it suggests to the managers of firms that for improving the return on equity to give special attention to the oil prices and its impact on their stock prices.

10.2. Recommendations for the future research

This study can be conducted also over the industrial and service corporations so that the results in such industries also to be identified. Given in this study we conducted our research on manufacturing industries, doing a similar research in the industrial and service corporations allows us to compare new results with results obtained in the present research.

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