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# THE EFFECT OF TARGETED SUBSIDIES ON THE FINANCIAL PERFORMANCE AND INFORMATION CONTENT OF EARNINGS FORTHE FIRMS LISTED ON THE TEHRAN STOCK EXCHANGE

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***Abstract:*** *After implementing targeted subsidies plan by the government of Iran and the efforts to make the prices real, the companies are confronted with competitive environment in which they should provide those goods and services based on the economic advantages of the country.Great changes occurred in Iran's economy after the implementation of targeted subsidies plan. Given the decision of Iran government to implement the second phase of targeted subsidiesplan and based on the uncertainities of predicting the real effects of the first phase of this law, market participants are faced with difficulties in predicting the future situation of the stocks market. The present study seeks to examine the effect of targeted subsidies on the information content of earnings and the financial performance of the firms listed on the Tehran Stock Exchange. Economic value added, refined economic value added, return on assets and return on equity are the measures of performance evaluation; and earning response coefficient is used to measure the information content of earnings. In doing so, 120 firms listed on the Tehran Stock Exchange have been selected as the sample. The sample period covers the years from 2008 to 2013. The results of regression analysis reveal that implementing the law of targeted subsidies has a significant inverse relationship with the measures of financial performance and information content of earnings.*

***Keywords****: Targeted Subsidies, Financial Performance, Information Content of Earnings, Tehran Stock Exchange.*

## 1. INTRODUCTION

By the emergence of concepts of development and social welfare in 1950s, the governments began to intervene in the economic operations of the countries. The governments were offered to intervene in these operations because the economic development was known to be the same as great investments and economic

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fundamentals. In 1970s, however, it was found that the physical capital is not the only required element to have a developed society. Furthermore, it was found that human capital plays an important role such as the physical capital. As a result, protection policies such as welfare state, subsidies policies and other items are selected as the main development programs. The precise targeted subsidies have been ignored in these policies and most countries have paid subsidiesin public forms. In 1980s, severe financial crisis occurred in Eastern Asia, Latin America, Southern Asia and Africa; as a result, development approaches changed in order to improve economic management and appoint more roles to market forces. These regions were confronted with financial crisis because of costly subsidies. In addition, the inefficiency of government distribution system and the negative effects of productions' price control on the producers are the other reasons of these changes. Eliminating and justifying subsidies in 1990s have been still considered (Dadgari and Nazari, 2011).

In Iran, there are many problems associated with manufacturing structures, energy management systems and equitable distribution of subsidies; the production in Iran is based on very cheap available energy and this is the reason for the very low productivity of energy. The reliance of the country on non-renewable energy sources (such as oil and gas), will make many problems for the country. To modify the manufacturing structures of the country, optimal management of energy consumption and equitable distribution of rents, it seems necessary to reformsubsidies based on an appropriate method (Mesbahi Moghaddam *et al.*, 2010).

Targetedsubsidiesplan of Iran has been developed in the government of Mahmoud Ahmadi Nejad and countiniued in the next government.Implementing the most significant law of Iran and based on the role of these subsidies on the costs, the competitiveness of the firms changed. As a result, the present study seeks to examine the effects of subsidies on the financial performance and information content of earnings in the firms listed on the Tehran Stock Exchange.

The remainder of the study is as follows. Literature review is presented in section 2. The methodology is presented in section 3. In section 4, the findings are represented and the final section shows the conclusion and suggestions for future studies.

## 2. LITERATURE REVIEW

By reviewing prior literature and studying the methodologies and measurement tools of the previous studies, the weakness and strength points are identified. In doing so, the author can select the appropriate research plan and remove the obstacles in the methodologies used for the study (Sarmad *et al.*, 2012). This section reviews the prior literature and representes their findings.

### 2.1. TargetedSubsidies

A subsidy is a form of direct or indirect financial aid, economic privilege or special advantage extended to the private institutes, families or government departments in

order to achieve the predefined objectives. Targeting subsidies means selecting targeted families and individuals anddistributing benefits to these targets through managed targeting plan and similar plans (Hoffman *et al.*, 1994). According to the fundamentals of the Islamic Revolution of Iran, it is intended to achieve developments over the planned period and this development should be equitable in order to benefit the whole sectors of the society. After approving the general policies of principal 44, the Iranian government tried to modify the justice-based economic structure to develop a comprehensive plan for implementing great economic modifications and organizing resource distribution including subsidies reform. Consequently, targeting subsidies is known as the gradual transfer of the financial resources to the people in order to take essential steps to modify the economic structure and prevent the wastes of resources (General Secretariat of the Supreme Council policy, 2010). Iranian targeted subsidies plan was passed by the Iranian Parliament on 2010. This plan aims to accomplish many tasks. In the economic environment of Iran, five objectives are defined (2000):

1. Enhancing the efficiency of the economic system
2. Decreasing public costs and removing budget imbalances and inflation control.
3. Decreasing the consumption of subsidies goods and optimal consumption of these goods.
4. Decreasing contraband, corruption and rent.
5. Lowering the gap between the consumption of goods and services between different income deciles and urban and rural socieites.

### 2.2. Financial Performance

In the complicated and vague economic environment of Iran, the investors and other stakeholders are always looking for those variables and factors which play essential roles in their decision making. In doing so, the researchers have examined the financial performance and explanatory power of these variables (Pour Heydari and Kermanshahi, 2010). Economic value added, refined economic value added, return on assets and return on equity are used as the measures of financial performance. These variables are defined below.

#### *Economic Value Added*

Economic value added (EVA) is a measure of company's financial performance that shows the ways to increase or decrease the firm value. EVA represents the residual wealth after deducting cost of capital (Stewart, 1997). EVA considers the opportunity cost of the used resources (Moghaddam and Kazem Pour, 2012). Residual profit is known as the most relevant concept to EVA (Breely *et al.*, 2001). In other words, EVA is equal to the amounts computed by the discounted cash flows or net present value

(Noravesh and Mashayekhi, 2004). This measure is based on value-based management which is related to controlling the total value created in a company (Rahnam Roud Poshti *et al.*, 2006). EVA is computed as follows:

EVA= Net operating profit after taxes (NOPAT)– (capital* weighted average of cost of capital)

NOPAT= Operating profit (1-tax rate)+_ Accumulated Depreciation +_ Changes in tax reserves +_ changes in provisions for employee benefits +_ changes in impairment losses

Capital= (Beginning assets – Beginning liabilities) + Beginning fixed assets + Beginning accumulated depreciation + Beginning tax reserves + Balance of employees benefits

Weighted average of cost of capital= keWe + kpWp+kdWd

Ke = cost of capital of commom stocks and retained earnings

We = the weight of common stocks and retained earnings from total capital

Kd = the rate of cost of capital of long-term liabilities

Kp = the rate of cost of capital of preffered stocks

Wp = the weight of preffered stock from total capital

Wd =the weight of liabilities from total capital (Sajjadi and Zareh Zadeh, 2011).

***Refined Economic Value Added***

Refined economic value added (REVA) provides an analytic framework for evaluating the operating performance and the created value for the shareholders. REVA is calculated the same as EVA. The difference is that the cost of capital is calculated based on the market value of the assets (Basidor *et al.*, 1997).

***Return on Assets***

Return on assets shows how profitable a company is relative to its total assets. It represents that how efficient management is at employing its assets to generate earnings (Moghaddam and Kazem Pour, 2012). This measure is calculated by dividing net operating profit after taxes by the capital. The capital includes total assets except for non-interest-bearing debts (Hejazi and Hosseini, 2006).

***Return on Equity***

Return on equity (ROE) indicates how much profit a company generates with the invested funds. This measure is computed by dividing net income by shareholders' equity (Hejazi and Hosseini, 2006).

**2.3. Information Content of Earnings**

Information content of earnings is defined as the changes in the expectations from an event. These changes should be so effective that they could impact the behaviors of

the decision makers. On the other hand, the information content of an accounting measure depends on the usefulness of this measure in making decisions by the capital market (Barandan, 2011). Accouting aims to provide financial information for the users in order to help them improve their decision making process. The accounting studies seek to evaluate the usefulness of the information for the investors and other users. Financial statements are the significant sources of information used by investors and other decision makers (Goodwin and Ahmed, 2006). The profit is one of the most important elements of financial information reported by the companies. In fact, the investors and many other users of financial information consider the profit as the significant source of performance evaluation. The profit is one of the main elements of stock pricing (Penman *et al.*, 2007).

Information content of the accounting profit is an interesting subject in accounting studies and has been introduced by Ball and Brown (1968). Different researchers have examined the information content of accounting profits by using various approaches. Most of them have agreed that accounting profit has information content (Rahnama Roud Posthi, 2010). Specifically, the information content of net reported earnings might be defined by the changes in the stock price or by abnormal returns when the market becomes aware of the current net earnings. In doing so, it is assumed that the information content of earnings helps investors modify their opinion about future returns and decide to buy or sell stocks which will finally change the stock price (Setayesh and Ebrahimi, 2012). Earnings response coefficient is used as one the most important measures to evaluate the information content of earnings defined below.

***Earnings Response Coefficient***

Earnings Response Coefficient (ERC) measures the unexpected return of market in response to the unexpected components of earnings reported by the firm issuing stocks. In other words, ERC examines the market sensitivity to earnings announcement by the regression coefficient between abnormal returns and unexpected earnings. ERC is a measure of information content of earnings (Scott, 2003). We have used the following equation to compute ERC (Chenng *et al.*, 2007):

$$CAR_i = a + b\ (SUE_i) + e_i$$

Where;

*CARi*: modified return based on the risk at security level of *i* for a 12-month period

*SUEi*: Standardized annual unexpected return

*ei*: Random distribution element (the distribution is assumed to be zero).

In the above equation, the coefficient of the independent variable (represented by *b*) is defined as ERC.

**4.2. Literature Review**

Najafi and Shoushtarian (2004) examined the effect of targeted subsidies and food insecurity. The required information is gathered by using random sampling and through interviews with 120 families in Arsanjan province of Iran. To examine the food insecurity in the sample, the index of Froster, Greer and Thorbeke (FGT) has been used and the percentage of individuals with food insecurity, the sensitivity to the distribution of food insecurity and the related gap are computed. The findings reveal that targeted subsidies helps reduce the government costs and mitigate the negative consequences of general subsidies in the long term.

Pirayi and Seyf (2010) explored the effect of targeted subsidies on the social welfare of Iran. They examined the effect of transferring one monetary unit of the subsidies belonged to the deciles with high revenues to the goods used by the deciles with low revenues. They concluded that targeted subsidies improves social welfare. Furthermore, it was found that enhancing welfare has an inverse relationship with inequality aversion parameter; however, it has a direct association with the contribution of the goods related to the deciles with low revenues.

Akbari and Moazen Jamshidi (2011) tested the impact of targeted subsidies on the costs and revenues of Isfahan city. According to the findings, targeted subsidies is both directly and indirectly associated with the revenues and costs of Isfahan municipality. Generally, the real results are consistent with the estimates and prior predictions. Based on the findings, municipality costs are directly and indirectly affected immediately; however, there is a lag in the effect of municipality revenues.

Dadgar and Nazari (2011) studied the welfare analysis of subsidies policies in Iran. The required information is gathered from the dataavailable in the central bank of Iran and global bank. Econometrics and regression models are used based on the time series related to the years from 1974 to 2012. The results of the study represent that the revenues are distributed inequally. It was found that in the periods of inflation, economic crisis and lack of fundamentals, targeted subsidies not only improves income distribution, but also mitigates their social welfare.

Nasrollahi and Hosseini (2011) examined the effect of eliminating energy subsidies on the competitiveness of Iran rubber industry. The findings reveal that the factories of Radial and Tube had higher competitiveness before targeted subsidies; furthermore, by implementing the targeted subsidies law, Tube productions maintained their competitiveness but Raidal production lost its compeitivess.

Son (2003) evaluated the components of costs, income, subsidies and indirect taxes from the perspective of social welfare. The findings reveal that the subsidies of food items, energy and medical items are more attributed to the poor individuals and those with low revenues. The subsidies should be paid to water and electricity, higher education, transposrtation and communication.

In a study by Dutta & Ramaswami (2004), it was tried to modify the pattern of paying subsidies to food items and estimate the money earned from targeted subsidies in the two states of India. In their study, the goods are divided into two groups includingsubsidies-involved group used by high-revenue deciles and non-subsidies-involved group used by low-revenue deciles. According to the findings, these subsidies policies had a significant impact on the social welfare in one of the two states of India; furthermore, this increase had a direct relationship with the goods related to low-revenus deciles.

Adams (2005) investigated the distribution effects of the modified system of food items subsidies in Egypt. The results represent that the maximum subsidies is allocated to those goods used more or less by poor and rich individuals in the society. As a result, the best way of targeted subsidies is to reduce the subsidies of the goods and gradual elimination of the subsidies of goods.

To the best of our knowledge, this is the first study about the effect of targeted subsidies on the measures of performance evaluation and information content of the earnings of the firms listed on the Tehran Stock Exchange. Some researchers have examined the effect of this law on other dimensions. Consequently, the present study seeks to examine the effect of targeted subsidies on the other measures of performance evaluation (EVA, REVA, ROA, ROE) and information content of earnings (ERC) and targeted subsidies.

## 3. METHODOLOGY

This is an analytical study using descriptive methods to explain the relationship between the vairables. Iranian targeted subsidies law was implemented in 2011; as a result, the required information related to three years before the implementation (2008, 2009 and 2010) and three years after implementation (2011, 2012 and 2013) areanalyzed in Rahavard-e-Novin and Tadbir Pardaz software. Statistical tests including panel data and F-Limer test are performed in Eviews 7.

In panel data approach, H0 means the equality of intercepts (pool data approach) and H1 means inequality of intercepts (panel data approach); therefore, panel data approach is confirmed when H0 is rejected. Hausman test is used to decide whther to use random-effect or fixed-effect model in estimating regression model. The null hypothesis of Hausman test is formed based on the non-correlation of random effects with explanatory variable. Consequently, when H0 is rejected, fixed-effect model is prioritized over random-effect model. In other words, when the test results confirm using random-effects model, the estimates are valid. Otherwise, fixed-effect model is preferred. Furthermore, standardized distribution of the residuals is tested after estimations and to determine the accuracy of the estimates. Generally, F-Limer test and Hausman test are done and the results of estimates and normality of the residuals are provided.

### 3.1. Population and Sample

The population is composed of the firms listed on the Tehran Stock Exchange. This population is selected because the financial statements of the listed firms are available and the information is homogenous. As a result, the data is better analyzed. The sample is composed of the companies except for the investment firms and financial intermediaries. The sample firms should meet the following criteria:

1. The firms should be listed on the Tehran Stock Exchange since 2008.
2. The listed frims should not change their activity field and they should not have stopped their operations.
3. The fiscal year of the sample firms should be consistent with the calander year.
4. The required information about sample firms should be available.

As mentioned before, 120 firms (720 firm-year observation) are selected as the sample.

### 3.2. Research Hypothesis

A hypothesis is a supposition made on the basis of evidence for future investigation. Hypothesis is an assumed relationship between two variables which results in testable statements (Khaki, 2003). The following hypotheses are developed based on the research question:

**H1**: Targeted subsidies has a significant impact on the economic value added.

**H2**: Targeted subsidies has a significant impact on the refined economic value added.

**H3**: Targeted subsidies has a significant impact on the return on assets.

**H4**: Targeted subsidies has a significant impact on the return on equity.

**H5**: Targeted subsidies has a significant impact on the earnings response coefficient.

## 4. FINDINGS

### Analyzing the first hypothesis

**H1**: Targeted subsidies have a significant impact on the economic value added.

Table 1 represents the results of Limer and Hausman tests in estimating regression models. Calculated F-value is 1.61 and the significance level is 0.0142 ($p<0.05$). In other words, the equality of intercepts is rejected and panel data approach is confirmed. On the other hand, Hausman test is performed to determine whether to use fixed-effect or random-effect model. Given the significance level (0.0001), the random-effect hypothesis is rejected and the model is estimated by using fixed-effect method.

**Table 1**
**Results of tests used to determine the method used for the first hypothesis**

| *Statistics* *Test* | *F-value* | *Sig. level* | *Result* |
|---|---|---|---|
| F-Limer | 1.61 | 0.0142 | Panel data |
| Hausman Test | 26.106 | 0.0001 | Fixed-effect |

*Source:* Findings of the researcher

The model used to test this hypothesis is as follows:

$Eva = \alpha_0 + \alpha_1 Roe + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Ben$

Where;

*REVA*= Refined economic value added,

*ROE*= Return on equity

*EVA*=Economic value added

*DUM*= Dummy variable of targeted subsidies

*Ben*= Net Profit.

The results of estimating the first hypothesis are represented in table 2. All variables in the model are significant at 0.05 level. DUM is a dummy variable which shows the effect of targeted subsidies and its significance level is high and its sign is negative. That is, targeted subsidies has a negative impact on the economic value added of the firms listed on the Tehran Stock Exchange. Generally, targeted subsidies have a significant inverse effect on the economic value added.

**Table 2**
**Results of estimating the first hypothesis**

| Estimation period: 2008-2013 | | | | |
|---|---|---|---|---|
| $Eva = \alpha_0 + \alpha_1 Roe + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Ben$ | | | | |
| $R^2$ | | | 0.960478 | |
| Adj. $R^2$ | | | 0.949414 | |
| F | | | 76.74554 | |
| Dependent variable | | | 659.3794 | |
| Durbin-Watson | | | 2.6577 | |
| Sig. level | | | 0.0000 | |
| *Explanatory variable* | *Coefficient* | *Std. Error* | *Statistics* | *Sig. level* |
| Constant | -5674.741 | 2106.520 | 2.693894 | 0.0077 |
| EVA | -0.028606 | 0.016536 | -1.729836 | 0.0863 |
| ROE | 110.3621 | 42.15561 | 2.617988 | 0.0096 |
| BEN | 0.166066 | 0.042758 | 3.817804 | 0.0002 |
| REVA | 0.735999 | 0.013985 | 52.62591 | 0.0000 |
| DUM | -4713.099 | 215.012 | -2.191107 | 0.0297 |

*Source:* Findings of the researcher

Based on F-value and the related probability, it can be concluded that the regression model is significant at the level of 95 percent. Durbin-Watson statistics for the model is close to two and the relative independence of the data is confirmed. Adjusted $R^2$ of the model indicates that the independent variables can explain 0.94 percent of changes in the dependent variable. Based on the findings, there are not evidences to reject the first hypothesis. Finally, to verify the findings, standardized residuals are shown in chart 1.

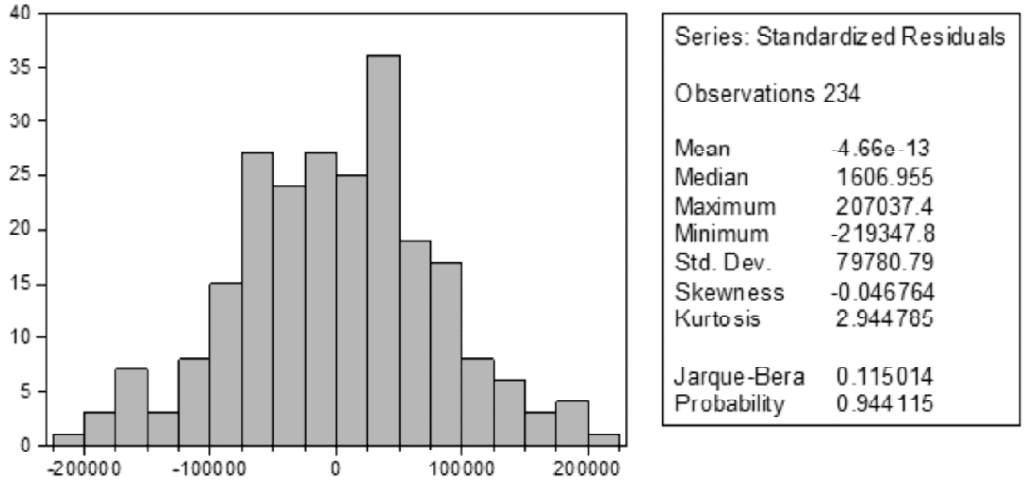


**Chart 1: Standaridized residuals related to the first hypothesis**

Given the value of Jarque-Bera which is close to 0.05, the residuals are distributed normally and the standard model is confirmed.

### Analyzing the second hypothesis

**H2**: Targeted subsidies have a significant impact on the refined economic value added.

Table 3 represents the results of Limer and Hausman tests for estimating the regression models. Calculated F-value is equal to 1.99 and the significance level is 0.0012 ($p<0.05$). Hausman test is used to determine whether to use fixed-effect or random-effect model. The significance level of Hausman test is 0.0017 ($p<0.05$) and the random-effect is rejected and the model is estimated by fixed-effect method.

**Table 3**
**Results of tests used to determine the method for the second hypothesis**

| *Statistics test* | *Statistics* | *Sig. level* | *Result* |
|---|---|---|---|
| F-Limer | 1.99 | 0.0012 | Panel data |
| Hausman | 19.24 | 0.0017 | Fixed effect |

*Sources:* Findings of the researcher

The model used for testing this hypothesis is as follows:

$$Reva = \alpha_0 + \alpha_1 Roe + \alpha_2 Eva + \alpha_3 Dum + \alpha_4 Arz$$

Where;

*REVA*= Refined economic value added,

*ROE*= Return on equity

*EVA*=Economic value added

*Dum*= Dummy variable of targeted subsidies

*Arz*= Beginning market value of the stocks.

The results of estimating the second hypothesis are represented in table 4. All variables in the model are significant at levels lower than 0.05. DUM which is a dummy variable representing the effect of targeted subsidies is very significant and its sign is negative. It can be then concluded that targeted subsidies has an inverse impact on the refined economic value added.

**Table 4**
**Results of estimating the second hypothesis**

Estimation period: 2008-2013
$Reva = \alpha_0 + \alpha_1 Roe + \alpha_2 Eva + \alpha_3 Dum + \alpha_4 Arz$

| | | | | |
|---|---|---|---|---|
| $R^2$ | 0.973010 | | | |
| Adj. $R^2$ | 0.962814 | | | |
| F | 95.42801 | | | |
| Dependent variable | -84569.49 | | | |
| Durbin-Watson | 2.6377 | | | |
| Sig. level | 0.0000 | | | |
| Explanatory variable | coefficient | Std. error | Statistics | Sig. level |
| Constant | -7033.325 | 4427.022 | -1.588719 | 0.1145 |
| REVA | -0.078649 | 0.016657 | -4.721766 | 0.0000 |
| ROE | -1119.0847 | 49.00086 | -1.430258 | 0.0164 |
| EVA | 0.915735 | 0.016184 | 56.58268 | 0.0000 |
| DUM | -13093.21 | 2913.921 | -4.4933332 | 0.0000 |
| Arz | 0.059936 | 0.017246 | 3.475306 | 0.0007 |

*Sources:* Findings of the researcher

Based on F-value and the related probability, it can be concluded that the regression model is significant at the 95 percent level of significance. The value of Durbin-Watson test is close to 2 and it shows that the data is relatively independent. The adjusted $R^2$ of the model is 0.962 and shows that the independent variables explain 0.96 percent of variations of the dependent variable. According to the findings, the second hypothesis is not rejected. Finally, the standardized residuals are tested in chart 2.

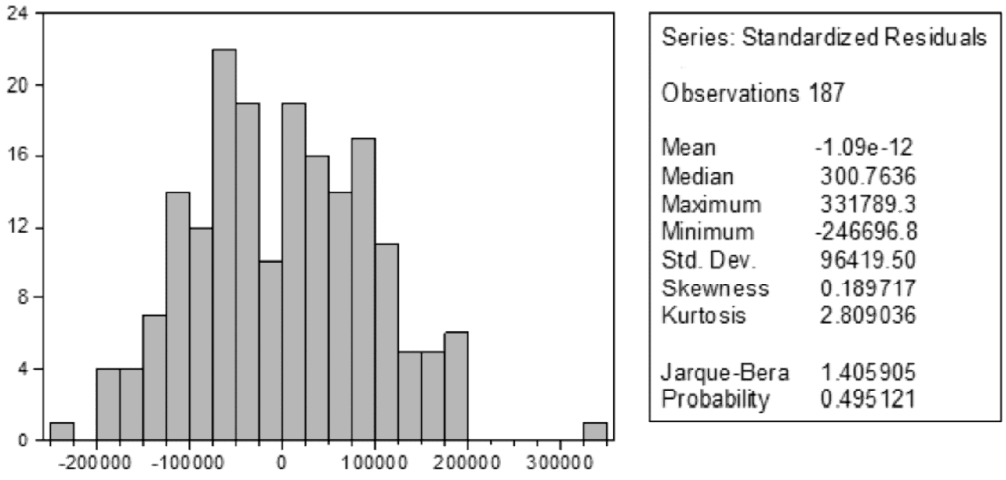


**Chart 2: Standardized residuals of the second hypothesis**

The value of Jarque-Bera is close to 0.05 and it is concluded that the residuals of the model are standard; therefore the standardized model is confirmed.

### Analyzing the third hypothesis

**H3**: Targeted subsidies have a significant impact on the return on assets.

Table 5 represents the results of F-Limer and Hausman tsts in estimating the regression models. The computed F-value is 4.59 and the significance level is 0.000 ($p<0.05$). In other words, the equality of intercepts is rejected and panel data approach is used. On the other hand, the results of Hausman test (0.000, $p<0.05$) indicate that the random-effect is rejected and the model is estimated by fixed-effect model.

**Table 5**
**Results of tests used to determine the method for the third hypothesis**

| *Statistics* *Test* | *Statistics* | *Sig. level* | *Result* |
|---|---|---|---|
| F-Limer | 4.59 | 0.0000 | Panel data |
| Hausman | 116.91 | 0.0000 | Fixed-effect |

*Source:* Findings of the researcher

The model used for the third hypothesis is as follows:

$$Roa = \alpha_0 + \alpha_1 Eva + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Ben + \alpha_5 Erc$$

Where;

*REVA*= Refined economic value added,

*ROA*= Return on assets

*EVA*=Economic value added

*Dum*= Dummy variable of targeted subsidies

*Ben*= Net profit

*ERC*= Earnings response coefficient

The results of estimating the third hypothesis are disclosed in table 6. All variables are significant at the levels lower than 0.05 level. Based on the results of DUM, it can be concluded that targeted subsidies has a negative impact on ROA of the firms listed on the Tehran Stock Exchage.

**Table 6**
**Results of estimating the third hypothesis**

Estimation period: 2008-2013

$Roa = \alpha_0 + \alpha_1 Eva + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Ben + \alpha_5 Erc$

| | | | | |
|---|---|---|---|---|
| $R^2$ | | 0.875637 | | |
| Adj. $R^2$ | | 0.840104 | | |
| F | | 24.64332 | | |
| Dependent variable | | 18.79568 | | |
| Durbin-Watson | | 2.237363 | | |
| Sig. level | | 0.0000 | | |
| *Explanatory variable* | *Coefficient* | *Std. error* | *statistics* | *Sig. level* |
| Constant | 4.862731 | 0.606032 | 8.23885 | 0.000 |
| REVA | 0.00000560 | 0.00000272 | 2.059703 | 0.0409 |
| EVA | -0.00000672 | 0.0000295 | -2.281646 | 0.0237 |
| DUM | -1.585869 | 0.378001 | -4.195410 | 0.0000 |
| BEN | 0.00000504 | 0.00000107 | 4.702225 | 0.0000 |
| ERC | 5.537839 | 1.878585 | 2.947877 | 0.0036 |
| ROA | 0.105423 | 0.062998 | 1.673431 | 0.0960 |

*Source:* Findings of the researcher

Based on F-value and the related probability, it can be concluded that the regression model is significant at the 95 percent level of significance. The results of Durbin-Watson test are close to 2 and it shows that the data is relatively independent. The adjusted $R^2$ of the model is 0.840 and shows that the independent variables explain 0.84 percent of variations in the dependent variable. According to the findings, there is no enough evidence for rejecting the third hypothesis. Finally, the standardized residuals are tested in chart 3.

The value of Jarque-Bera is close to 0.05 and it is concluded that the residuals of the model are standard; therefore the standardized model is confirmed.

### Analyzing the fourth hypothesis

**H4**: Targeted subsidies have a significant impact on the return on equity.

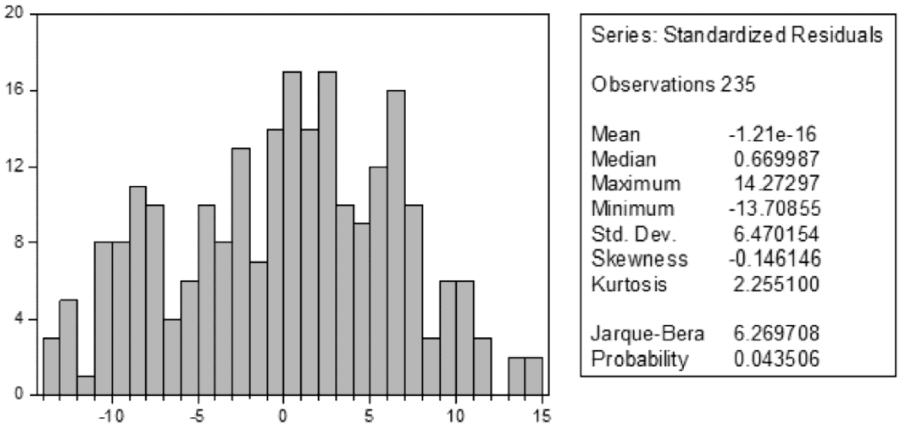


**Chart 3: Standardized residuals of the third hypothesis**

Table 7 represents the results of F-Limer and Hausman tests in estimating the regression models. The computed F-value is 4.49 and the significance level is 0.000 ($p<0.05$). In other words, the equality of intercepts is rejected and panel data approach is used. On the other hand, the results of Hausman test (0.000, $p<0.05$) indicate that the random-effect is rejected and the model is estimated by fixed-effect model.

**Table 7**
**Results of the tests used for determining the method for the fourth hypothesis**

| *Statistics*<br>*Test* | *Statistics* | *Sig. level* | *Result* |
|---|---|---|---|
| F-Limer | 4.49 | 0.0000 | Panel data |
| Hausman Test | 24.05 | 0.0000 | Fixed-effect |

*Source:* Findings of the researcher

The model used for testing the fourth hypothesis is as follows:

$$ROE = \alpha_0 + \alpha_1 Roa + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Arz + \alpha_5 Ben + \alpha_6 Eva$$

Where;

*REVA*= Refined economic value added,

*ROE*= Return on equity

*EVA*=Economic value added

*DUM*= Dummy variable of targeted subsidies

*Ben*= Net profit

*ROA*=Return on Assets

The results of estimating the fourth hypothesis are disclosed in table 8. All variables are significant at the levels lower than 0.05 level. Based on the results of DUM, it can

be concluded that targeted subsidies has a negative impact on ROE of the firms listed on the Tehran Stock Exchage.

**Table 8**
**Results of estimating the fourth hypothesis**

| Estimation period: 2008-2013 | | | | |
|---|---|---|---|---|
| $Roe = \alpha_0 + \alpha_1 Roa + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Arz + \alpha_5 Ben + \alpha_6 Eva$ | | | | |
| $R^2$ | | 0.748743 | | |
| Adj. $R^2$ | | 0.676955 | | |
| F | | 10.42996 | | |
| Dependent variable | | 137.6170 | | |
| Durbin-Watson | | 2.125604 | | |
| Sig. level | | 0.0000 | | |
| *Explanatory variable* | *Coefficient* | *Std. error* | *Statistics* | *Sig. level* |
| Constant | 25.37906 | 2.082716 | 12.18556 | 0.0000 |
| ROA | 0.194440 | 0.208092 | 0.933865 | 0.3516 |
| REVA | 0.00000181 | 0.00000122 | 0.148440 | 0.8822 |
| EVA | 0.00000109 | 0.00000119 | 0.090922 | 0.9277 |
| DUM | -5.723495 | 1.046351 | -5.46995 | 0.0000 |
| Ben | 0.000126 | 0.0000279 | 4.515104 | 0.0000 |
| ROE | -0.20389 | 0.085668 | -2.381161 | 0.0183 |

*Source:* Findings of the researcher

Based on F-value and the related probability, it can be concluded that the regression model is significant at the 95 percent level of significance. The results of Durbin-Watson test are close to 2 and it shows that the data is relatively independent. The adjusted $R^2$ of the model is 0.676 and shows that the independent variables explain 0.67 percent of changes in the dependent variable. According to the findings, there is no enough evidence for rejecting the fourth hypothesis. Finally, the standardized residuals are tested in chart 4.

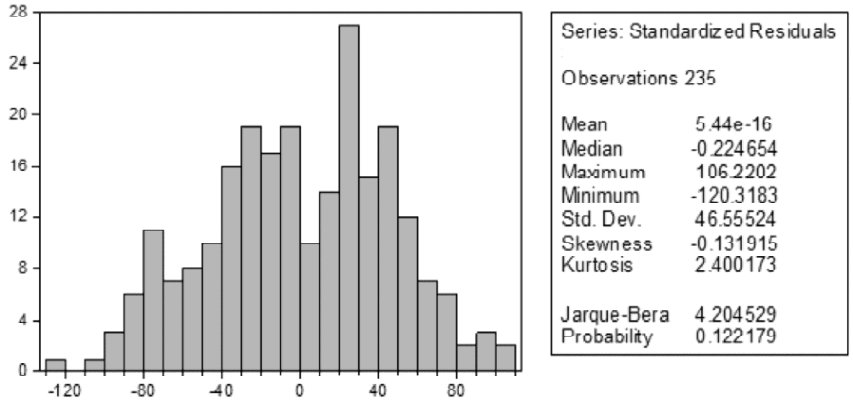


**Chart 4: Standardized residuals of the fourth hypothesis**

*Source:* Findings of the researcher

The value of Jarque-Bera is close to 0.05 and it is concluded that the residuals of the model are standard; therefore the standardized model is confirmed.

**Analyzing the fifth hypothesis**

**H5**: Targeted subsidies have a significant impact on the earnings response coefficient.

Table 9 represents the results of F-Limer and Hausman tests in estimating the regression models. The computed F-value is 2.55 and the significance level is 0.000 ($p<0.05$). In other words, the equality of intercepts is rejected and panel data approach is used. On the other hand, the results of Hausman test (0.000, $p<0.05$) indicate that the random-effect is rejected and the model is estimated by fixed-effect model.

**Table 9**
**Results of the tests used for determining the methods for the fifth hypothesis**

| *Statistics* *Test* | *Statistics* | *Sig. level* | *Result* |
|---|---|---|---|
| F-Limer | 2.55 | 0.0000 | Panel data |
| Hausman Test | 34.08 | 0.0000 | Fixed-effect |

*Source:* Findings of the researcher

The model used for testing the fifth hypothesis is as follows:

$$Erc = \alpha_0 + \alpha_1 Roe + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Arz + \alpha_5 Eva$$

Where;

*REVA*= Refined economic value added,

*ROE*= Return on equity

*EVA*=Economic value added

*Dum*= Dummy variable of targeted subsidies

*ERC*= Earnings response coefficient

*ROA*=Return on Assets

The results of estimating the fifth hypothesis are disclosed in table 10. All variables are significant at the levels lower than 0.05 level. Based on the results of DUM, it can be concluded that targeted subsidies has a negative impact on ERC of the firms listed on the Tehran Stock Exchage.

Based on F-value and the related probability, it can be concluded that the regression model is significant at the 95 percent level of significance. Drbin-Watson test is close to 2 and it shows that the data is relatively independent. The adjusted $R^2$ of the model is 0.562 and shows that the independent variables explain 0.56 percent of changes in the dependent variable. According to the findings, there is no enough evidence for rejecting the fifth hypothesis. Finally, the standardized residuals are disclosed in chart 5.

**Table 10**
**Results of estimating the fifth hypothesis**

| Estimation period: 2008-2013 | | | | |
|---|---|---|---|---|
| $Erc = \alpha_0 + \alpha_1 Roe + \alpha_2 Reva + \alpha_3 Dum + \alpha_4 Arz + \alpha_5 Eva$ | | | | |
| $R^2$ | | 0.659897 | | |
| Adj. $R^2$ | | 0.562188 | | |
| F | | 6.753686 | | |
| Dependent variable | | 0.537222 | | |
| Durbin-Watson | | 2.193550 | | |
| Sig. level | | 0.0000 | | |
| Explanatory variable | Coefficient | Std. error | Statistics | Sig. level |
| Constant | 0.118851 | 0.017762 | 6.691412 | 0.0000 |
| REVA | -0.0000081 | 0.00000121 | -0.661742 | 0.5090 |
| ROE | -0.000821 | 0.000249 | -3.298492 | 0.0012 |
| DUM | -0.071918 | 0.011511 | -6.247707 | 0.0000 |
| Arz | 0.00000146 | 0.00000358 | 3.937547 | 0.0001 |
| ERC | 0.185997 | 0.047788 | 2.486991 | 0.0138 |
| EVA | 0.0000046 | 0.00000014 | 0.330009 | 0.7418 |

*Source:* Findings of researcher

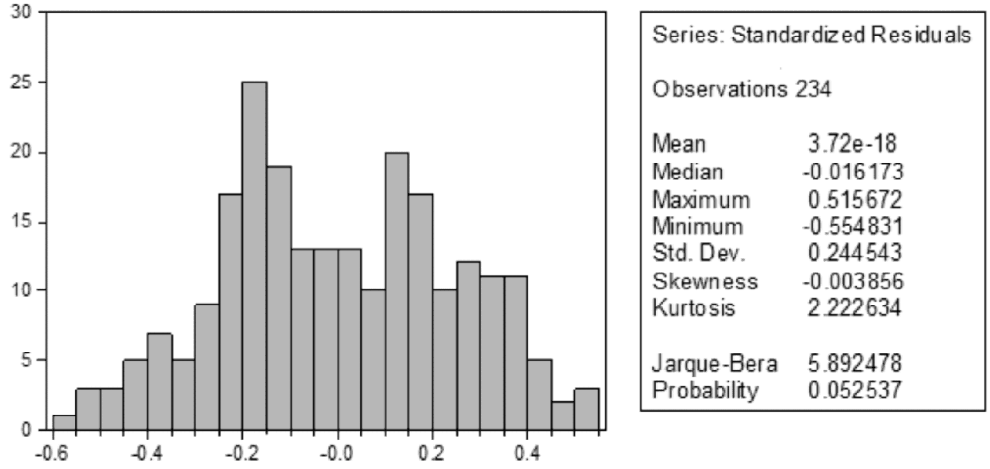


**Chart 5: Standardized residuals of the fifth hypothesis**

The value of Jarque-Bera is close to 0.05 and it is concluded that the residuals of the model are standard; therefore the standardized model is confirmed.

## 5. DISCUSSION, CONCLUSION AND SUGGESTIONS

Subsidies are established to create a balance between the reasonable goals of the societies such as occupancy,growth of the domestic products and saving energy. The subsidies are mainly aimed to determine the energy price at a level lower than the free market. Various experiences of different countries and economic theories represent

that subsidies are not appropriate instruments to achieve these obejctives and subsidies generate more problems. These problems include inefficiency in allocating resources to the production and consumption of energy, imbalance of the government budget and the commercial balance of energy and redistribution of the high-revenue groups (Tehran Stock Exchange, 2012). According to the increasing trend of implicit and explicit subsidies, it seems necessary to modify the system of subsidies in Iran. Targeted subsidies law was finally implemented in Iran after confronting with various challenges and problems. This law can have valuable consequences for Iran's economy and the most important result is the changes occurred in the energy consumption and better distribution of the revenues and enhancing the welfare of low-revenue groups. It is also expected that the other consequences will emerge in future (Zaman Zadeh, 2011).

The significant effect of energy prices on different economic sectors should be considered in impelementing targeted subsidies law. This is because energy costs comprise a notable amount of costs related to the manufacturing industries. Any changes in these costs will have a direct impact on the operations of these departments and related markets. The stocks of the largest companies in Iran are traded in Tehran Stock Exchange; then we can expect that modifying the prices of energy items will impact the indicators of financial performance and information content of earnings. Therefore, the present study seeks to examine the effect of targeted subsidies on the financial performance and information content of the firms listed on the Tehran Stock Exchange. In doing so, economic value added, refined economic value added, return on assets and return on equity are used as the measures for financial performance and earnings response coefficient is employed to measure the information content of the earnings. This study covers a period from 2008 to 2013 (a six-year period) and 120 companies are selected as the sample. In order to test the research hypothesis, regression method is used. The findings reveal that implementing targeted subsidies has an inverse significant impact on the measures of financial performance and information content of the earnings. Accordingly, the officials of Iran are required to pay more attention to the implementation of this law and productions. They should also consider the effect of implementing the second phase of targeted subsidies on the performance of the firms listed on the Tehran Stock Exchange. Obviously, it is suggested to develop a comprehensive guideline to prevent the consequences related to the effects of targeted subsidies. This guideline should include the following items:

1. Identifying the effects of the first phase of targeted subsidies on the stock exchange and providing appropriate solutions.
2. Allocating supportive packages to different departments of the industry.
3. Financial loans granted to the listed firms in order to restrict their industrial departments in order to reduce energy consumption.

Given the significance of these findings in the future studies, the following items are suggested in future studies:

1. Future studies can use other measures such as earnings per share, cash added value, Tobin's Q ratio and return on sales to measure the financial and economic performance.
2. It is suggested that the future studies examine the effect of targeted subsidies on different industries.
3. The longer time periods can be also used in future studies.

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