The relationship between earnings before interest and taxes and operating cash flow and stock return under the condition of information asymmetry in Abadan and Arak Petrochemical Companies through markov-switching approach

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ABSTRACT

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This research investigated the relationship between earnings before interest and taxes and operating cash flow and shareholders' return in Abadan and Arak Petrochemical Companies. This relationship was tested under the condition of information asymmetry. Nonlinear Markov-Switching approach was adopted to test the hypotheses. The results of empirical tests through the data in 2001-2010 indicated that in Arak Petrochemical Company, both variables of earnings before interest and taxes and operating cash flow had significant relationship with stock return of company. However, in Abadan Petrochemical Company, only the variable of earnings before interest and taxes had significant and positive relationship with stock return of company. Increase in information asymmetry showed that variable of operating cash flow had a stronger relationship with stock return of companies than the variable of earnings before interest and taxes. In other words, under the condition of information asymmetry, cash flow variables had higher correlation with stock return of companies than accrual variables.

One of the most fundamental economic issues is the optimum allocation of resources to high yield investments with reasonable risk. In our country, in terms of presence in economic development path and privatization, it seems that investment volume in future periods will be increased. However, with regard to information asymmetry, investors will require some criteria, so that they can evaluate the performance of companies and make right and economic decisions. In this regard, performance evaluation criteria are of great importance. Some of these criteria emphasize cash flow variables and some emphasize information content of accounting earnings. According to the studies conducted by Easton, Harris, and Ohlson (1992), Dechow (1994), and Haw, Qi, and Wu (2001), earnings (due to the additional information content in its accrual components) have higher information content than cash flows. At the international level, Bartov, Goldberg, and Kim (2002) investigated the information content of earnings and cash flows in order to evaluate shareholders' equity in the US, England, Canada, Germany and Japan. The results indicated that earnings are of more importance than cash flows. However, due to asymmetric distribution of information among individuals, it seems that cash flow variables have more information content than accounting earnings in the description of market performance of company. Therefore, in this research, the relationship between earnings before interest and taxes and operating cash flow and shareholders' return in Abadan and Arak Petrochemical Companies was investigated.

Theoretical Foundations of the Study
The accounting earnings, which are prepared through accrual system, are considered as a tool to measure the performance of the company from the viewpoint of many financial statements' users. Measuring the performance of companies means general evaluation of financial status and the results of operation in order to make logical decisions. For example, accounting earnings can be considered as the foundation of banks accreditation to companies or the entry condition of stock exchange. In the statement of financial accounting concepts No 6, using accrual method in accounting has been mandated by Financial Accounting Standards Board (FASB). In this regard, the reflection of transactions and events effects of the company does not necessarily mean cash flow. In other words, in accrual method, principles like matching principle and recognition principle are used to reflect revenues and expenses and calculate accounting earning. A company's success depends on its ability to create cash flow. Operating cash flow is one of the most important performance criterion from the viewpoint of inter-organization and intra-organization users especially investors and creditors. In the theoretical framework of financial accounting, which determines the objectives of financial reporting, special attention has been given to cash flows and the possibility of predicting it. In the statement of financial accounting concepts No 1 of FASB, it has been stated that:

"Financial reporting should provide information to help present and potential investors, creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts form dividends or interest and the proceeds from the sale, redemption, or maturity of securities or loans. The prospects for those cash receipts are affected by an enterprise's ability to generate enough cash to meet its obligations when due and its other cash operating needs to reinvest in operations and to pay cash dividends and may also be

affected by perceptions of investors and creditors generally about that ability, which affect market prices of the enterprise's securities" (Financial Accounting Standards Board, 2008). International Accounting Standards Committee (IASC) in international accounting standards No 7 has stated that:

"Information about the cash flows of an entity is useful in providing users of financial statements with a basis to assess the ability of the entity to generate cash and cash equivalents and the needs of the entity to utilize those cash flows. The economic decisions that are taken by users require an evaluation of the ability of an entity to generate cahs and cash equivalents and the timing and certainty of their generation" (International Accounting Standards, 2010). International Accounting Standards Committee of Iran has stated in the section of financial reporting theoretical concepts that "adopting economic decisions by financial statements users requires assessing the ability of the entity to generate cash and cash equivalents. Assessing the ability of generating cash is facilitated through focusing on financial status, financial performance and cash flows of entity, applying them to predict expected cash flows and measuring financial flexibility".

There are differences between accounting earnings and operating cash flows due to the impact of following factors:

1. The first factor is noncash expenses (like depreciation expense) which reduces net income, but does not reduce company cash.
2. The second factor is the time difference between revenue recognition and receiving it and the time difference between exerting effort and paying it.
3. The third factor is the non-operating profit or loss due to selling fixed assets, securities and other investments which is implemented in case of profit or loss and change net income, but in the section of operating activities, does not affect cash flows statement.

Figure 1 indicates different dispositions of accrual and cash systems. Each disposition shows available information on the market at a point in time. In the first case, earnings and operating cash flow contain important information. In the second case, earnings and operating cash flow contain important information, but none of them has incremental information content relative to the other. Finally, in the third case, one of the variables (for example earnings) has incremental information content in relation to the other variable. However, the opposite is not true. In fact, in this study, we investigate the relationship between earnings and operating cash flows and stock return, and then we test this relationship under the condition of information asymmetry to find that which has a stronger relationship with shareholders' return.
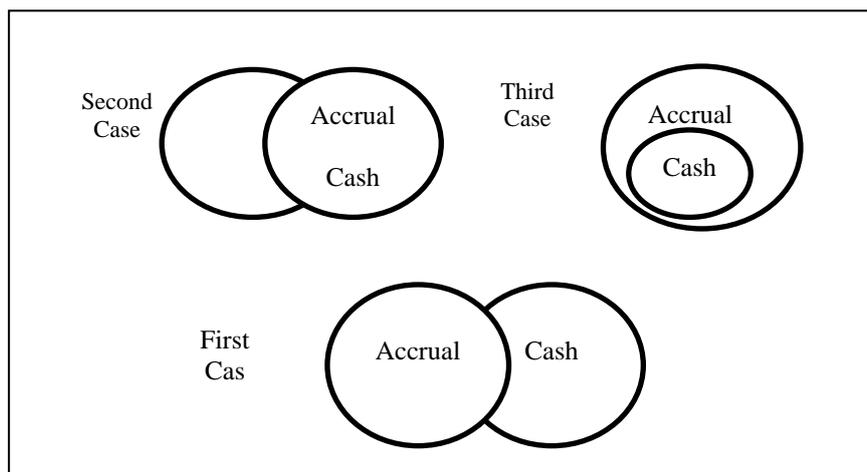
Figure 1. Probable results of studying incremental information content of accrual and cash flows

The Related Empirical Research

Gombola and Ketz (1983) investigated the relationship between the numbers of accrual earnings and cash flows in their research. Their results indicated that cash flows lack information importance in comparison to accounting earnings.

Rayburn (1986) in his research studied the relationship between the unexpected components of accrual earnings and cash flows and stock return. The results indicated that both components i.e. accounting earnings and cash flows have information content.

Wilson (1987) in his study investigated the role of information content of earnings components versus the number of earnings through separating accrual and cash components. The results showed that accrual components of earnings have incremental information content compared to their cash components.

In their research, Bowen, Burgstahler, and Daley (1987) studied the incremental information content of accrual and cash accounting. The results indicated that earnings and cash flows data have incremental content relative to one another. Moreover, cash flows data have incremental information content relative to that contained in earnings.

Easton et al. (1992) in his research investigated the relative information content of earnings and cash flows. The results showed that earnings have higher information content than cash flows.

In his research, Dechow (1994) hypothesized that one role of accounting accruals is to provide a measure of short-term performance that more closely reflects expected cash flows than do realized cash flows. The results are consistent with this prediction. First, over short measurement intervals earnings are more strongly associated with stock returns than are realized cash flows. In addition, the ability of realized cash flows to measure firm performance improves relative to earnings as the measurement interval is lengthened. Second, earnings have a higher association with stock returns than do realized cash flows in firms experiencing large changes in their working capital requirements and their investment and financing activities.

Hodgson and Stevenson (2000) in their study investigated the relationship between earnings and cash flows and stock return influenced by firm size. The results were consistent

with more transitory earnings components for smaller firms and cash flows add greater incremental explanatory power for large firms. Moreover, it was observed that a nonlinear functional relation provides greater explanatory power for both earnings and cash flows.

Charitou, Clubb, Andreou (2000) studied the relationship between earnings and operating cash flows and stock return in Japan for the period 1985-1993. The results indicated that cash flows play a more important role in the marketplace when earnings are transitory.

Bartov et al. (2002) in their research studied the information content of earnings and cash flows in order to evaluate shareholders' equity in the US, England, Canada, Germany and Japan. The results showed that in the US, England and Canada (except for Germany and Japan), earnings are of more importance than cash flows. In fact, national reporting regime is a factor, which has affected the information content of earnings and cash flows.

In their research, Haw et al. (2001) studied the information content of operating cash flows, earnings and accruals in the emerging capital market of China. According to the results, the more information content of earnings relative to that contained in operating cash flows was confirmed. It was also found that discretionary accruals provide incremental information beyond that contained in nondiscretionary accruals.

Chan, Chan, Jegadeesh, & Lakonishok (2006) studied the relationship between accruals (the difference between earnings and cash flows) and stock return. The results indicated that companies with high accruals will have poor future stock return after the period of financial information reporting.

Subramanyam and Venkatachalam (2007) reexamined the relative importance of earnings and operating cash flows in equity valuation. The results suggested that accrual-based earnings dominate operating cash flows as a summary indicator of ex-post intrinsic value.

Arthur, Cheng, and Czernkowski (2010) in their research studied information content of cash flows and accruals. The results showed that the cash flows components of earnings have content for investors and dividing earnings into cash flows and accruals has incremental information content relative to the disclosure of aggregate earnings.

Steffen Rapp (2010) in his research investigated the relationship between accounting earnings and cash flows and shareholders' return under the condition of information asymmetry. According to the results, under the condition of information asymmetry, accounting earnings have more information content than cash flows. However, with increasing information asymmetry cash flows criteria become more correlated with the firm's stock market performance.

Zarif Fard and Nazemi (2004) in their research under the title of "An investigation of the role of accounting earnings and cash flows in performance measurement of accepted firms at Tehran Stock Exchange" investigated the relationship between earnings and cash flows in measuring and evaluating firms' performance through stock return and considering three variables of accruals, firm size and industry type. The results indicated that accounting earnings have more power to measure and evaluate performance than cash flows (including net cash flows and operating cash flows). In addition, firm size has significant impact on the relationship between earnings and cash flows and stock return.

Khajavi and Nazemi (2005) in their study under the title of "An investigation of the relationship between earnings quality and stock return with the emphasis on the role of

accruals in Tehran Stock Exchange" investigated that do accruals (the difference between accounting earnings and cash flows) have a considerable role in market reaction to earnings information of companies. Therefore, they studied 96 companies for the period 1998-2003. The results indicated that the stock return mean of companies is not influenced by accruals and its components.

Arab Mazar Yazdi, Mashayekhi, Rafiee (2006) in their research named as "The information content of cash flows and accrual in the capital market of Iran" studied the incremental and relative information content of earnings, operating cash flows and accruals in the capital market of Iran. The research was conducted through investigating the relationship between stock return and earnings and its components according to a sample of 400-company for the period 2000-2003. The results showed that earnings have more information content than cash flows. On the other hand, accruals have more incremental information content than operating cash flows. It was also found that discretionary accruals provide incremental information beyond that contained in nondiscretionary accruals.

Foroghi and Mazaheri (2009) in their research under the title of "The ability of earnings and operating cash flows in explaining ex-post intrinsic value of equity of accepted companies in Tehran Stock Market" studied the question that among criteria like operating earnings and operating cash flows, which one has the greater power to explain the ex-post intrinsic value, so that they may be used as the substitution for ex-post intrinsic value in the process of investment decisions. This study includes the period of 1998-2007. The results indicated that operating earnings explain the ex-post intrinsic value of equity better than operating cash flows.

Jacobson and Aaker (1993) in their research conducted comparative investigation into information asymmetry between the capital market of Japan and US. According to the results, the capital market of Japan reflects the information on future profitability in stock price earlier than the capital market of US.

Kim and Verrecchia (1994) in their research investigated the relationship between earnings announcements and market liquidity. The results indicated that if all the market activists receive information, earnings announcements will reduce information asymmetry. Moreover, if some traders are able to process the information, information asymmetry may remain at high level.

Verrecchia (2001) in his study investigated the results of discretionary disclosure of information. According to the results, more disclosure of information leads to investors' profitability. Moreover, disclosure of general information reduces information asymmetry and costly activities of gathering information for investors.
In their research, Libby, Mathieu, and Robb (2002) studied the relationship between earnings announcement and information asymmetry. Through investigating the active companies in Toronto Stock Exchange, the results indicated that bid-ask spreads, as the representation of information asymmetry, are wider before the release of earnings announcements.

Ajinkya, Bhojraj, and Sengupta (2005) in their study investigated the role of management in forecasting earnings and information asymmetry around earnings announcements. It was found that firms with more efficient and effective board of directors, issue more accurate earnings forecasts. Therefore, there is a relationship between the high quality of board of

directors and more accurate earnings forecasts and less information asymmetry around earnings announcements.

Bachtiar (2008) in his study investigated the relationship between accruals and information asymmetry. According to the results, accruals have a positive and significant relationship with information asymmetry. Moreover, there is a positive and significant relationship between discretionary accruals and information asymmetry. Lakhal (2008) studied the effect of quarterly earnings announcements on information asymmetry. The results indicated that after announcing quarterly earnings, information asymmetry reduces. The relationship between earnings quality and information asymmetry was investigated by Bhattacharya, Desai, and Venkataraman (2013). They found that low quality of earnings leads to an increase in information asymmetry in financial markets. Wasan and Boone (2010) in their study investigated the relationship between accruals and information asymmetry. They concluded that there was no significant relationship between bid-ask spreads, as the representation of information asymmetry, and accruals.

Ghaemi and Vatanparast (2005) in their research under the title of "An investigation of the role of accounting information in reducing information asymmetry in Tehran Stock Market" investigated the role of accounting information in reducing information asymmetry. In this study, information asymmetry and its effect on stock price and trading volume in 21 days ago and after earnings announcements per share for the period 2002-2004 were investigated. The results indicated that there is information asymmetry in Tehran Stock Exchange and it is higher in periods before earnings announcements than periods after earnings announcements. Moreover, information asymmetry is correlated with trading volume and stock price.

Ahmadpour Kasgari and Ajam (2010) in their research named as "An investigation of the relationship between accruals quality and information asymmetry in Tehran Stock Exchange" studied the relationship between accruals quality and information asymmetry for 346 cases of firms' earnings announcements for the period 2002-2008. They found that the accruals quality of accepted firms in Tehran Stock Exchange does not have a significant effect on information asymmetry.

Khoddamipour and Ghadiri (2010) in their research "An investigation of the relationship between accruals and information asymmetry in Tehran Stock Exchange" studied the relationship between accruals and information asymmetry among investors of Tehran Stock Exchange. The results, based on statistical sample of 101 firms for the period 2003-2009 (7 years), indicated that there is a positive and significant relationship between abnormal accruals and information asymmetry. Moreover, there is a positive and significant relationship between information asymmetry and stock return volatility.

Ghaemi, Nozarim, Rahimpour, and Rouhi (2010) in their study under the title of "Quarterly earnings announcements and information asymmetry" investigated the effect of quarterly earnings announcements on market information asymmetry. The results of 555 quarterly earnings announcements of 157 accepted companies in Tehran Stock Exchange indicated that after quarterly earnings announcements, information asymmetry has not reduced significantly.

Pattern of Analysis

Using different time series models is the common method of studying the dynamic behavior of economic and financial variables. Among these models, linear models like Auto-regressive (AR) and moving average (MA) models or the combination of these i.e. auto-regressive moving average models (ARMA) are more famous, because such models can be easily estimated through common econometrics software. Although these models have been successful in most case, they are unable to explain nonlinear behavior like asymmetry. One of the most famous nonlinear time series models is Markov-Switching model. This model was first introduced by Quandt (1972), Goldfeld and Quandt (1973). Then it was developed by Hamilton (1989) to extract business cycles. In general, in nonlinear models, it is assumed that the behavior of variable, which modeling is performed on it, is different in various conditions and may change. Nonlinear models are divided into two general groups in terms of the speed of transition from one condition to another. In some of these models, transition from one condition to another is slow and smooth (like STAR[1] and ANN[2] model). In others nonlinear models, the speed of transition is high and Markov-Switching model is of this type. In Markov-Switching model, probability is used to separate time series variables or the relationship between variables into two or more regimes. Since Markov-Switching method is nonlinear, it has the ability to determine information asymmetry characteristics of regimes and is more appropriate than VAR and ARMIA methods.

The data of this research has been collected through the information of the audited financial statements. Therefore, a large amount of information has been gathered through Rahavard Novin Software and Tadbir Pardaz Software and other information has been collected through Research, Development and Islamic Studies Center of the Securities and Exchange Organization and the data bank of this organization. OxMetrics Software version 6 was used for statistical analysis.

Research Hypotheses

Hypothesis 1: Accounting variables lead to better performance than cash flows variables in explaining the performance of companies' stock return (capital market).
Hypothesis 2: Increase in information asymmetry leads accounting variables to play a more important role than cash flows variables in explaining the performance of companies' stock return (capital market).

Definition of Research Variables

The variables of research are summarized in Table 1.

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[1]Smooth Transition Auto-Regressive

[2] Artificial Neural Network

Table 1
Definition of Research Variables

Variables	Definition	Variables	Definition
R_{it}	Shareholders' Return Percentage	$BETA_{it}$	Systematic risk, which is calculated through dividing the covariance of stock return and market return by the variance of market return.
EAR_{it}	Earnings before Interest and Taxes	$SIZE_{it}$	The size of company, which is calculated through the logarithm of total assets.
CF_{it}	Operating cash flows	MTB_{it}	Market-to-book ratio of shareholders' equity
LEV_{it}	Company's Total Liabilities Divided by Total Assets	ETP_{it}	The ratio of earnings per share to stock market price

In order to measure information asymmetry, three dummy variables are used as following:
$MACP_{it}$: if company's market capitalization is greater than market capitalization median of annual portfolio, the value is considered one, otherwise it is zero.
$INTANG_{it}$: if the ratio of tangible fixed assets to total assets of company in each year is greater than the median of the same ratio in the annual portfolio, the value is considered one, otherwise it is zero.
$DOMINATED_{it}$: if the floating stock of company is less than 50%, the value is considered one, otherwise it is zero.

Data Analysis

The first step in estimating model through Markov-Switching method is to verifying the nonlinearity of data pattern. Therefore, LR test is conducted and its results are described in Table 2.

Table 2
Results of RL Test

Company	Statistic	Probability Value
Abadan Petrochemical Company	26.131	0.0001
Arak Petrochemical Company	27.032	0.0000

According to Table 2, variables follow a nonlinear pattern. In fact, linear method is not appropriate for estimating model parameters and in order to study the relationship between variables, nonlinear method must be conducted. Therefore, in this study, the nonlinear method of Markov-Switching has been used. The results of estimating the model of hypothesis 1 through Markov-Switching model are presented in Table 3.

Table 3
Results of Estimating the Model of Hypothesis 1 through Markov-Switching Model

		Variables	coefficients	T-statistics	Significance Level
Abadan Petrochemical Company	Regime 1	Fixed Value	2.12938	2.54	0.239
		Earnings before Interest and Taxes	0.00061	32.3	0.020
		Operating Cash Flows	0.00051	0.630	0.960
		Variables	Coefficients	T-statistics	Significance Level
Arak Petrochemical Company	Regime 2	Fixed Value	97.4863	40.7	0.16
		Earnings before Interest and Taxes	0.23334	0.464	0.724
		Operating Cash Flows	-0.00073	-0.0891	0.943
		Variables	Coefficients	T-statistics	Significance Level
		Fixed Value	34.8595	8.46792	0.000
		Earnings before Interest and Taxes	0.0001	16.4	0.000
		Operating Cash Flows	-0.02257	-5.27	0.013

The results of estimating the model of hypothesis 1 for Abadan Petrochemical Company indicate two regimes. In regime 1, the independent variable of earnings before interest and taxes and in regime 2, fixed value has a positive and significant relationship with company's stock return. However, other independent variables do not have positive and significant impact on company's stock return. In Arak Petrochemical Company, the impact of fixed value on company's stock return is equal to 34.8595, which is positive and significant. Moreover, the impact of the independent variable of earnings before interest and taxes on company's stock return is equal to 0.0001, which is positive and significant. The impact of independent variable of operating cash flows on company's stock return is equal to -0.02257, which is negative and significant.

The results of estimating the model of hypothesis 2 through Markov-Switching model are presented in Table 4.

Table 4
The Results of Estimating the Model of Hypothesis 2 through Markov-Switching Model

		Adding the Dummy Variable of DOMINATED			Adding the Dummy Variable of INTANG			Adding the Dummy Variable of MACP		
Abadan Petrochemical Company	Variables	Coefficients	Sig Level	Variables	Coefficients	Sig Level	Variables	Coefficients	Sig Level
	Earnings before Interest and Taxes	0.00061	0.000	Earnings before Interest and Taxes	0.00054	0.000	Earnings before Interest and Taxes	0.00053	0.000
	Operating Cash Flows	-0.04523	0.000	Operating Cash Flows	-0.056778	0.000	Operating Cash Flows	-0.05610	0.000
		Adding the Dummy Variable of DOMINATED			Adding the Dummy Variable of INTANG			Adding the Dummy Variable of MACP		
Arak Petrochemical Company	Variables	Coefficients	Sig Level	Variables	Coefficients	Sig Level	Variables	Coefficients	Sig Level
	Earnings before Interest and Taxes	0.03821	0.000	Earnings before Interest and Taxes	-0.046422	0.000	Earnings before Interest and Taxes	0.046085	0.000
	Operating Cash Flows	-0.04882	0.000	Operating Cash Flows	0.0464436	0.000	Operating Cash Flows	-0.04780	0.000

According to Table 4, after adding dummy variables as the representation of information asymmetry, the relationship between independent variables and company's stock return has been changed. In fact, among independent variables, earnings before interest and taxes and operating cash flows have significant relationship with company's stock return. Comparing the coefficients of earnings before interest and taxes and operating cash flows indicates that in all case, the coefficient of earnings before interest and taxes is greater than the coefficient of operating cash flows. Under the condition of information asymmetry, cash flow variables have more correlation with company's stock return than accrual variables. In Figures 2, 3, 4, and 5 the occurrence probability of regimes in every year is demonstrated.
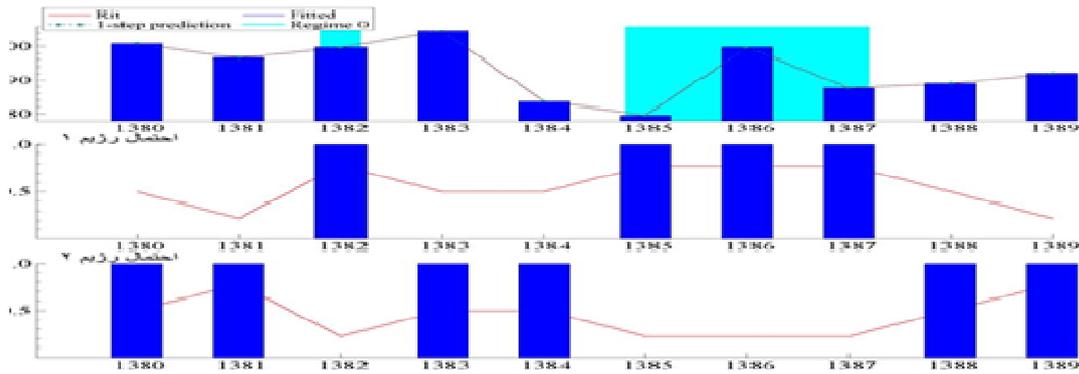
Figure 2. The occurrence probability of regimes in Abadan Petrochemical Company through adding dummy variable, DOMINATED
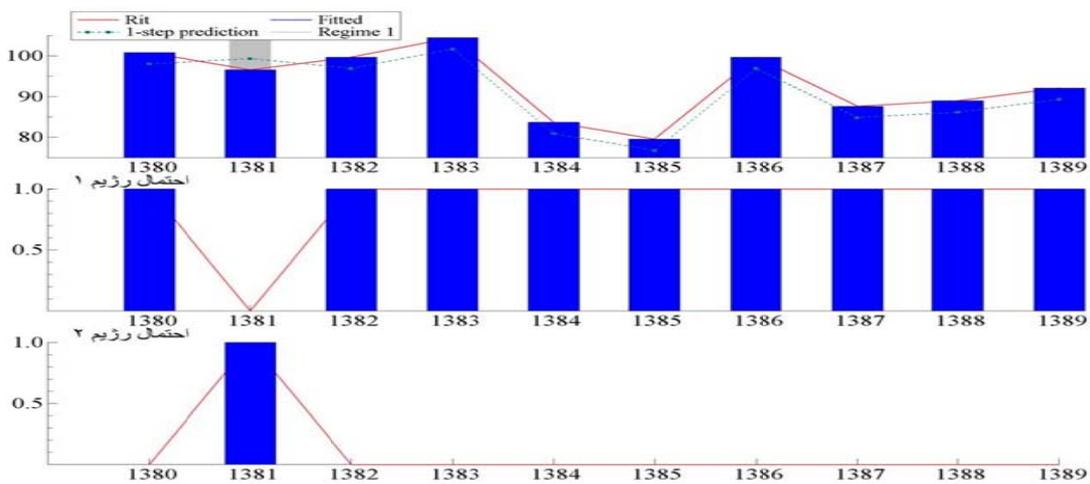

Figure 3. The occurrence probability of regimes in Abadan Petrochemical Company through adding dummy variables, MACP and INTANG
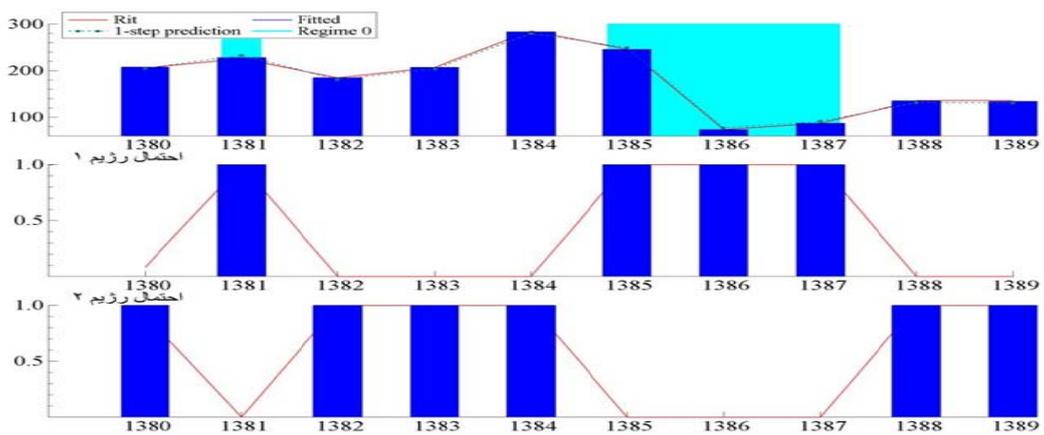

Figure 4. The occurrence probability of regimes in Arak Petrochemical Company through adding dummy variables, INTANG and DOMINATED
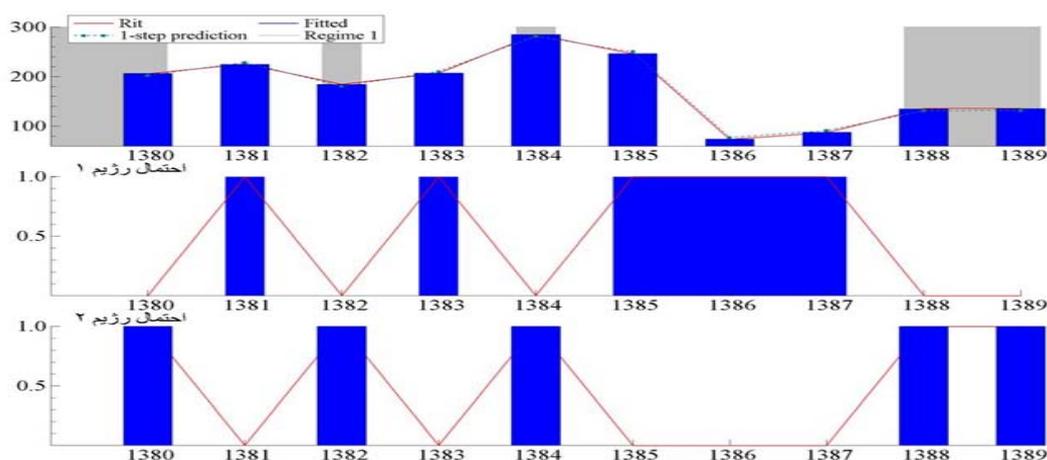
Figure 5. The occurrence probability of regimes in Arak Petrochemical Company through adding dummy
variables, MACP

According to Figures 2, 3, 4, and 5 the years, which are investigated in this research, are categorized and summarized in Table 5. At the end, in Table 6, the probability of transferring form one regime in time t to another regime in time t+1 for both companies is indicated.

Table 5
Categorization of Studied Years with Regard to the Regime

Abadan Petrochemical Company	Studied Regime	Years of each regime		
		Adding Dummy Variable, DOMINATED	Adding Dummy Variable, INTANG	Adding Dummy Variable, MACP
	Regime 1	2003, 2006, 2007, 2008	2001, 2003-2010	2001, 2003-2010
	Regime 2	2001, 2002, 2004, 2005, 2009, 2010	2002	2002
Arak Petrochemical Company	Studied Regime	Years of Each Regime		
		Adding Dummy Variable, DOMINATED	Adding Dummy Variable, INTANG	Adding Ddummy Variable, MACP
	Regime 1	2002, 2006-2008	2002, 2006-2008	2002, 2004, 2006-2008
	Regime 2	2001, 2003-2005, 2009, 2010	2001, 2003-2005, 2009, 2010	2001, 2003, 2005, 2009, 2010

Conclusion

According to the results of the research, in Arak Petrochemical Company, the variables of earnings before interest and taxes and operating cash flow have a significant relationship with company's stock return. However, in Abadan Petrochemical Company, the variable of earnings before interest and taxes has a positive and significant relationship with company's stock return. Moreover, after increasing information asymmetry, it was indicated that the variable of operating cash flow has a stronger relationship with company's stock return than the variable of earnings before interest and taxes. In other words, cash flow variables have more correlation with company's stock return than accruals variables. The results of this research are similar to the results of research conducted by Steffen Rapp (2010) in Germany (his research has been considered as the foundation of this research), which indicates that accounting earnings contain more information content than cash flows. However, through increasing the information asymmetry, cash flow criteria are more related in explaining the performance of capital market. The results of this research are different from the results of researches conducted by Gombola and Ketz (1983), Easton et al. (1992), Haw et al. (2001),

Arab Mazar Yazdi et al. (2006) and Foroghi and Mazaheri (2009), because they show that accounting earnings contain more information content than cash flow.

Limitations of the Study

There are some limitations, which may influence the generalizability of results. According to one of these limitations, earnings like earnings before interest and taxes or other types are not the only factors of forming investors' decisions and there are definitely other factors, which can influence the decisions of investors (like individuals' heterogeneous expectations, that may be considered as a factor in different decisions made by investors). However, these factors are not considered in this research.

Moreover, Environmental, economic and political macro conditions like exchange rate, inflation and other rules may influence the variables of research. However, these factors are not considered in this research.

In estimating time series, if the investigated data have time relationship with each other, OLS method will be used to investigate and estimate, but if the data have both time and place relationship with one another, Panel Data method will be used. The results of investigating the effects of variables are generalizable to all the companies, which are being studied. Markov-Switching nonlinear method has been designed to explain behavior of variables. It investigates the effects of a change or a shock in a system (company) and the transition of a regime during a time. Therefore, we cannot generalize the results to all companies. In fact, this method is conducted in case studies. In order to investigate and generalize the results to all accepted companies in Tehran Stock Exchange, Markov-Switching panel model must be used, but since there is no statistical software to estimate model in our country, we could not implement this method. It is hoped that in near future, researchers will implement it.

Recommendations for Future Research

Investors are advised to consider cash flow and earnings before interest and taxes criteria in order to minimize the risk of information asymmetry in their investments. In addition, due to the role of information asymmetry in capital market's efficiency, it is recommended that Securities and Exchange Organization must provide solutions for increasing information transparency and reducing information asymmetry. It must also take steps to implement the existing mechanisms such as information disclosure instruction for registered companies in the organization and reporting instruction for holders of final information and executive guarantee. In fact, reducing information asymmetry must be considered as a public goal by accounting policies editors for codifying standards.

Since earnings before interest and taxes (accounting earnings) can be easily managed and manipulated and have impacts on increasing information asymmetry in capital market, those who are in charge of codifying accounting standards are advised to consider the quality and necessities of earnings in accounting earnings and reduce the manipulation of earnings. Due to the different industries of accepted companies in Tehran Stock Exchange, it is recommended that researchers study this topic. Moreover, in order to investigate the relationship between earnings before interest and taxes and operating cash flows and

company's stock return, it is recommended that other models like domain difference of bid-ask price and nonlinear models such as fuzzy and neural network should be used.

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