International Journal of Finance and Managerial Accounting, Vol.10, No.39, Autumn 2025 IJFMA

The Role of Qualitative Indicators of Capital Market Improvement in Capital Market Efficiency

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Submit: 25/06/2023 **Accept:** 29/08/2023

ABSTRACT

The purpose of this research is to determine the relationship between qualitative indicators of capital market improvement and capital market efficiency. By considering the qualitative indicators of capital market improvement and asking experts, we generally reached the conclusion that the indicators that lead to the improvement of the capital market will eventually lead to the efficiency of the capital market. In order to test the hypothesis, 143 companies listed to the Tehran Stock Exchange were investigated during the years 2015 to 2021. In order to measure the qualitative indicators of the capital market improvement, to identify the factors and sub-factors according to 18 capital market experts, we used the fuzzy Delphi method, fuzzy *DEMATEL* and fuzzy ANP methods, and we used the turnover test to measure the efficiency. Also, the methods of correlation statistics and multivariate regression with the combined data pattern and the estimated generalized least squares method (EGLS) were used. The result indicates that according to the AD variable (qualitative index of capital market improvement) which has a significant level (0.00), there is a significant relationship between the qualitative index of capital market improvement and capital market efficiency.

Keywords: Qualitative indicators of capital market improvement, Capital market efficiency, Stock exchange.

1. Introduction

This research has investigated the relationship between qualitative indicators of capital market improvement and capital market efficiency. In this regard, we emphasized the efficient market theory. The stock exchange, as one of the main and fundamental pillars of the capital market, by concentrating capital and optimally allocating it in line with increasing production and economic and social development goals, causes prosperity and mobility of the capital market and ultimately leads to an increase in investment efficiency and economic prosperity. Therefore, the efficiency of the market by reducing information asymmetry and better access to the intrinsic value of stocks can play an important role in the formation of investors' portfolios. The main role of the stock exchange is to attract and direct the savings and liquidity scattered in the economy towards its optimal paths, in such a way as to lead to the optimal allocation of scarce financial resources, but this is important and depends on the existence of the market efficiency. The capital market is considered efficient when it can reflect the available information quickly and completely in stock prices (Ang and Weber, 2019). An efficient securities market is a place where the price of traded securities can correctly reflect all the information about those securities at any time. There are many sources of information. In addition to quantitative indicators of capital market improvement such as the loyalty of shareholders and investors, qualitative indicators of the capital market such as strengthening the role of the market in financing, encouraging indirect investment in the capital market and etc. have a very important role in the efficiency of capital productivity, from the point of view of Scott (2011). This research seek to investigate the type of relationship between qualitative indicators of capital market improvement and capital market efficiency.

2-Theoretical foundations and research background

Strengthening the role of the capital market in financing

The advantages of market-oriented financing of economic enterprises are not hidden to anyone, and the recent trends, especially in the European Union, confirm this. Although countries like Germany and France, unlike countries like England and the Netherlands, have a bank-oriented economy, over the past two decades, they have turned to the capital market to increase the financing of economic enterprises. Unfortunately, in the days when public interest in the capital market increases, the contribution of companies to the cash flow entering the market is minimal, and the money flow only leads to an increase in the stock price, and practically the publishers do not benefit from this price increase, and the process Capital formation does not happen in companies. In addition, the common methods of increasing capital in Iran are based on methods that do not lead to the entry of new money into companies (increasing capital from accumulated profits, revaluation of assets), or if the capital increase is from cash, it is independent of the performance of the issuer's shares in the capital market. Considering that one of the main functions of the capital market is the optimal allocation of resources, the financing of that part of the capital market should be easier and cheaper than other parts. (Aurora Teixeira, Annabella, 2016)

Encouraging indirect investment in the stock market

Investing in the capital market requires a lot of knowledge, expertise and experience, and due to the many fluctuations that are the main part of the capital market, direct investment in this sector by the general public, who mainly have enough time and energy to learn the basics of investing in this the market does not have, not only it does not help to improve their capital, but it will lead to many risks for their capital as well as intensifying the fluctuations of the market. Therefore, it is suggested to modify the current initial supply method in which by inviting the general public to participate in buying and inducing that buying the initial supply is a profitable and risk-free investment (Qoli, 2021).

Increase transparency

Reflecting all the available information in the prices and discovering the correct prices are among the main functions of the capital market, which leads to the optimal allocation of resources to the most efficient sectors of the economy. This things cannot be achieved except by improving the corporate governance system in order to protect the interests of minority shareholders and to minimize the conflict of interests between managers and shareholders and to

limit the possibility of corruption in companies. Increasing the transparency of publishers plays a significant role in quickly reflecting important news and by improving the quality and timely release of financial reports to the market in order to prevent transactions based on confidential information and to hit trust and fair competition in the capital market. (Ebrahiminejad et al. 2009).

Development of financial instruments

The capital market is a place where, in addition to investing their funds, its participants engage in risk hedging and transfer, arbitrage and speculation (all these verbs contribute to the efficiency of the capital market). If the necessary tools are not available, they will inevitably turn to other markets and part of the wandering capitals will move to unproductive and sometimes destructive markets. Therefore, the more diverse the available tools, the more actors turn to the stock market to meet their needs (Nuri Yushanloui, 2020).

Capital market efficiency

The efficiency of the market is of great importance, because if the capital market is efficient, both the price of securities is determined correctly and fairly, and the allocation of capital, which is the most important factor in economic production and development, is done optimally. In traditional economics, it is assumed that investors are rational and the price of securities is equal to their intrinsic value, and the intrinsic value of stocks is obtained by discounting the amount of expected cash flows, provided that the investor's expectations are correct based on the available information. Fundamental news causes changes in the price of securities, and when investors get new information about the intrinsic value of securities, they quickly react to it. All new information is quickly reflected in prices, and there is no chance for anyone to make unusual profits based on this information (Vitkova et al., 2023).

Proponents of the efficient market hypothesis say that the efficiency of the market does not depend on the rationality of all investors. In many scenarios, when some investors are not logical, the market is also efficient. In a single scenario, irrational investors are not related to each other, so their transactions are random and uncorrelated. Due to the large number of such investors, in the end, noisy traders will not affect the price of securities. Another notable issue is that irrational investors make common mistakes, and it can be said that this is due to some types of collective behavior, so transactions are correlated. These topics, which are mainly presented by Fama and Friedman, are justified based on the concept of arbitrage. Paul Samuelson proved that the market is efficient at the micro level but not at the macro level. Due to the fact that there are predictable fluctuations of dividend profits at the company level, but in the whole market this prediction is very little. He stated that the movements among stocks are more sensitive than the movement in the whole market. Obviously, the exceptions seen in the stock market cannot be explained by the efficient market model and price changes by the discounted value of future returns. The efficient market theory has not yet linked the fluctuations of the stock market with its fundamentals (Sataish and Padmesri, 2018).

The empirical background of the research

Freund et al. (2021) investigated the relationship between chief executive officers (CEOs) in debt assets and internal capital market allocation of multi-sector companies in a research titled Internal CEO and Internal Capital Market Efficiency. They find that CEO inside debt holdings are related with conservative capital allocation to firm divisions, the result of which is driven by financially distressed firms.

Gudarzi Farahani and Barati (2022) in a research entitled "Evaluation of the role of expected profit in management on investment efficiency in the capital market" investigated the role of expected profit in management on the investment efficiency of companies listed on the Tehran Stock Exchange. The results of this study showed how the management's expected profit, which is estimated under the management's expectations bias, has an effect on investment efficiency.

Innovation

In terms of the theoretical foundations of this research, it is aimed at expanding the simultaneous effects of factors affecting the efficiency of the capital market, and the assumption of an efficient market, which is influenced by the efficiency of information and the increase in the information content of efficient market prices, can play the role of qualitative indicators of capital market improvement (which helps to improve

the scope of investors' vision) to analyze the efficiency of the capital market

Functional innovation:

Identification of qualitative indicators of capital market improvement based on the opinion of classification experts in fuzzy anp

3- Research method

This research is descriptive-analytical and applied, In terms of the inference method. Descriptive research describes and interprets the things without interference. This type of research includes collecting information in order to test hypotheses or answer questions related to the current state of the subject under study. The time frame of this research includes data from 2015 to 2020. The statistical population of this research is 18 experts who have the necessary education and expertise in the field of capital market and financial statement information of all companies listed to the Tehran Stock Exchange. In this research, 143 companies have been considered as a statistical sample of the systematic elimination method. To collect the data of other variables of the research, the information of the financial statements and the Rahavard Novin software were used. Finally, the research hypotheses were tested using Eviews software.

4- Research hypothesis

There is a significant relationship between the qualitative indicators of capital market improvement and capital market efficiency.

Hypothesis statistical model:

$$CME_{i,t} = \alpha_0 + \beta_1 AD_{i,t} + \beta_2 Size_{i,t} + \beta_3 LEV_{i,t} + \beta_4 MTB_{i,t} + \beta_5 SG_{i,t} + \varepsilon_{i,t} \quad (1)$$

In the above models:

$CME_{i,t}$: indicates the efficiency of the capital market.

$Size_{i,t}$: indicates the size of the company.

$LEV_{i,t}$: represents financial leverage.

$MTB_{i,t}$: represents the ratio of the market value of the company's equity to the book value of the equity.

$SG_{i,t}$: indicates the growth of sales, which is the difference between the sales of the current fiscal year and the previous fiscal year to the sales of the year.

AD: The ideal rating of qualitative indicators of capital market improvement, which is calculated using the opinion of experts and the information disclosed in the financial statements for each company-year.

Definition of variables and calculation

The dependent variable

The dependent variable in this research is capital market efficiency.

The efficiency of the capital market in this research is shown by CEM and is measured as follows:

In order to determine the role of each company in the years under study in reaching the level of efficiency or inefficiency of the capital market, we use the turnover test (Allah Yari, 2008):

The above test is actually a comparison between the number of expected circulations and the number that was actually observed. If the number of signs observed is greater than expected, the conclusion will be that the stock price changes are not dependent on each other and each one has moved independently. The number of circulation is calculated as follows. From consecutive observations and above and below the average to determine the circulation. If in a particular observation we come to the conclusion that the observed value is greater than the average value, we give it a sign (+) and if we have observations smaller than the average, we give it a sign (-), and if the observations are equal to the average, then we delete observations. The relevant calculations in this case are shown as follows:

$X_i = +$ if $\mu_i > \mu$

$X_i = -$ if $\mu_i < \mu$

Deleted observations if, $\mu_i = \mu$

μ indicates the mean and $\mu_i$in indicates the value of observations.

Robert and Wills (1965) formulated the expected number of rotations including all signs (m) (zero, negative, positive) and showed the standard deviation for the expected number of rotations (δ_m) as follows:

$$m = \frac{N(N+1)\sum_{i=1}^{3}(n_i)^2}{N} \quad (2)$$

where:

N= represents the number of observations

n_i = the number of price changes for each of the signs as follows:

i=1: For positive changes

i=2: For negative changes

i=3: For situations that do not change

The standard deviation of m, indicated by δ_m, is calculated as follows:

$$\delta_m = [\frac{\sum_{i=1} n_i^2 (\sum_{i=1}^3 n_i^2 + N(N+1)) - 2N \sum_{i=1}^3 n_i^3 - N^3}{N^2(_{N-1})}]$$

The normal criterion of the variable (K) after completing continuous adjustments is calculated as follows:

$$K = \frac{(R \pm A) - m)}{\delta_m} \quad (4)$$

if $R \leq m \rightarrow A = +\frac{1}{2}$

if $R > m \rightarrow A = -\frac{1}{2}$

R: sum of observations of different types of circulation
A: Fixed and continuous adjustments
R: the actual number of rounds is equal to $\sum_{i=1}^{n} R_i$ where i=1,2,3,…

independent variable

Qualitative indicators of capital market improvement

The independent variable in this research is the qualitative index of capital market improvement. To measure this variable, after identifying the important dimensions, we use the F. DEMATEL method to determine the relationships and intensity of the influence and effectiveness of the factors, and to rank the factors, we use the F. ANP method.

In this research, two questionnaires have been used to identify and rank the qualitative indicators of capital market improvement. The first questionnaire is designed to screen the components of the model. In this questionnaire, experts (18 senior capital market managers) answered to the importance of each of the identified components, based on a 5-point Likert scale, and the fuzzy Delphi method was used for screening. The second questionnaire was developed in order to identify the internal relationships between the dimensions of the model through the fuzzy *DEMATEL* approach. In this part, the questionnaire for scoring through a 5-level spectrum as "Completely no impact (0)", "Low impact (1)", "Moderate impact (2)", "High impact (3)", "Impact Too much (4)" was sent to 18 experts.

Table 1. Questions related to the components of the qualitative index of capital market improvement

Factors	Sub-factor
Strengthening the role of the capital market in financing	Value of traded shares (Farman Ara et al., 2018)
	The ratio of traded stock value to stock price changes (Farman Ara et al., 2018)
	Human capital and structural changes in increasing knowledge (Aurora Teixeira, Annabella, 2016)
	Direct investment (Aurora Teixeira, Annabella, 2016)
Encouraging indirect investment in the stock market Increase transparency	Specialized business training courses known as MBA (Qoli, 2021)
	Transaction volume (Qoli, 2021)
	Investing in investment funds (Capital and Knowledge Brokerage Company, 2021)
	Investing through portfolio companies (Capital and Danesh Brokerage Company, 2021)
	Transparency improves the scope of investors' vision in order to quickly respond to market developments and ultimately control it (Abbasi and Abzari, 2005).
	Transaction transparency benefits market makers, despite knowledgeable and critical traders who cannot time their trades (Bloomfield and Ahara, 1999).
	transaction costs (Ebrahiminejad et al., 2009)
Development of financial instruments	Institutional factors increase turbulence in financial markets (Haddad and Heidari, 2010).
	In developing countries like Iran, financial policy tools, especially taxes, affect the competitiveness of the country's financial markets and the performance of institutions in the capital market (Sadeghi et al., 2019).
	In order to create the same conditions for dividends and other monetary securities such as bank contracts and partnership bonds, the legislator should also consider tax exemption for the capital market (Nuri Yushanloui, 2019).

First stage survey

At this stage, the presented conceptual model along with the description of the factors was sent to the members of the expert group, and their level of agreement with each of the factors was obtained and their suggested and corrective points were divided. The absolute mean obtained shows the intensity of experts' agreement with each of the research factors. The results of these calculations are shown in the table below.

Table 2. The results of the first polls along with the average opinions of experts

Factors	Row	Linguistic value	Very High	High	averages	Low	Very Low	max	mod	min	Un-fuzzified average of expert opinions
		Numerical value	9	7	5	3	1				
		Sub-factors - fuzzy value	(7 ،9 ،10)	(5 ،7 ،9)	(3 ،5 ،7)	(1 ،3 ،5)	(0 ،1 ،3)				
Strengthening the role of the capital market in financing	1	The ratio of traded stock value to stock price changes	14	3	1	0	0	9/67	8/44	6/44	8/31
	2	Value of shares traded	14	2	2	0	0	9/56	8/33	6/33	8/20
	3	Direct investment	11	5	2	0	0	9/39	8/00	6/00	7/90
	4	Increase knowledge	3	5	5	5	0	7/50	5/67	3/67	5/64
Increase transparency	5	Improving the scope of investors' vision	16	2	0	0	0	9/89	8/78	6/78	8/63
	6	Transaction costs	11	7	0	0	0	9/61	8/22	6/22	8/12
	7	Transaction transparency	7	10	1	0	0	9/28	7/67	5/67	7/60
Encouraging indirect investment in the stock market	8	Transaction volume	15	2	1	0	0	9/72	8/56	6/56	8/42
	9	Specialized training courses	11	5	2	0	0	9/39	8/00	6/00	7/90
	10	Investment in mutual funds	8	6	4	0	0	9/00	7/44	5/44	7/37
	11	Investing through portfolio companies	9	6	2	1	0	9/06	7/56	5/56	7/47
Development of financial instruments	12	Institutional factors	14	2	2	0	0	9/56	8/33	6/33	8/20
	13	Financial policy instruments	16	1	1	0	0	9/78	8/67	6/67	8/52
	14	tax exemption	8	8	2	0	0	9/22	7/67	5/67	7/59

Second stage survey

At this stage, the second questionnaire was prepared and sent to the members of the expert group together with the previous point of view of each person and the extent of their difference with the point of view of other experts. In the second stage, the members of the expert group responded to the questions again according to the opinions of the other members of the group, the results of which are presented in the table below.

According to the views presented in the first stage and comparing it with the results of this stage, if the difference between the two stages is less than the threshold of 0.2, then the survey process is stopped. Among the mentioned factors, factors whose unphased average of expert opinions is less than 8 were removed from the conceptual model of the research. At this stage, the survey of 11 factors has been stopped and the survey of the remaining 3 factors should be done, which will be done in the third stage.

Table 3. The results of the second polling along with the average opinions of experts

Factos	Row	Linguistic value	Very High	High	averages	Low	Very Low	max	mod	min	Unfuzzified average of expert opinions	The difference between the averages of the first and second questionnaires	Result
		Numerical value	9	7	5	3	1						
		Sub-factors - fuzzy value	(7,9,10)	(5,7,9)	(3,5,7)	(1,3,5)	(0,1,3)						
Strengthening the role of the capital market in financing	1	The ratio of traded stock value to stock price changes	15	2	1	0	0	9/72	8/56	6/56	8/42	0/10	Accepted
	2	Value of shares traded	14	3	1	0	0	9/67	8/44	6/44	8/31	0/11	Accepted
	3	Direct investment	12	4	2	0	0	9/44	8/11	6/11	8/00	0/10	Accepted

Factos	Row	Linguistic value	Very High	High	averages	Low	Very Low	max	mod	min	Unfuzzified average of expert opinions	The difference between the averages of the first and second questionnaires	Result
		Numerical value	9	7	5	3	1						
		Sub-factors - fuzzy value	(7,9,10)	(5,7,9)	(3,5,7)	(1,3,5)	(0,1,3)						
	4	Increase knowledge	2	2	11	3	0	7/22	5/33	3/33	5/31	0/32	third stage
Increase transparency	5	Improving the scope of investors' vision	17	1	0	0	0	9/94	8/89	6/89	8/73	0/10	Accepted
	6	Transaction costs	13	5	0	0	0	9/72	8/44	6/44	8/32	0/20	Accepted
	7	Transaction transparency	6	11	1	0	0	9/22	7/56	5/56	7/50	0/10	Rejected
Encouraging indirect investment in the stock market	8	Transaction volume	16	1	1	0	0	9/78	8/67	6/67	8/52	0/10	Accepted
	9	Specialized training courses	14	2	2	0	0	9/56	8/33	6/33	8/20	0/31	third stage
	10	Investment in mutual funds	7	7	4	0	0	8/94	7/33	5/33	7/27	0/10	Rejected
	11	Investing through portfolio companies	6	9	2	1	0	8/89	7/22	5/22	7/17	0/31	third stage
Development of financial instruments	12	Institutional factors	14	3	1	0	0	9/67	8/44	6/44	8/31	0/11	Accepted
	13	Financial policy instruments	17	0	1	0	0	9/83	8/78	6/78	8/62	0/10	Accepted
	14	tax exemption	7	9	2	0	0	9/17	7/56	5/56	7/49	0/10	Rejected

Third stage survey

At this stage, while making necessary changes in the factors of the model, a third questionnaire was prepared and sent to the experts along with the previous point of view of each person and the difference between them and the average point of view of other experts, the results of which are presented in the table below.

As the table above shows, the amount of disagreement between the experts in the second and third stages is less than the threshold of 0.2, and therefore the survey is stopped at this stage. Therefore, during the three stages of the survey, out of 14 sub-factors, 5 sub-factors were removed from the final conceptual model of the research and the final model had 9 sub-factors as shown in the table.

Table 4. The results of the third survey along with the average opinions of experts

Factos	Row	Linguistic value	Very High	High	averages	Low	Very Low	max	mod	min	Unfuzzified average of expert opinions	The difference between the averages of the second and third questionnaires	Result
		Numerical value	9	7	5	3	1						
		Sub-factors - fuzzy value	(9,7,10)	(5,7,9)	(3,5,7)	(1,3,5)	(1,3,0)						
Strengthening the role of the capital market in financing	4	Increase knowledge	1	3	11	3	0	7/17	5/22	3/22	5/21	0/10	Rejected
Encouraging indirect investment in the stock market	9	Specialized training courses	14	3	1	0	0	9/67	8/44	6/44	8/31	0/11	Accepted
	11	Investing through portfolio companies	6	9	3	0	0	9/00	7/33	5/33	7/28	0/11	Rejected

Table 5. Factors affecting the qualitative indicators of capital market improvement

Factors	Subfactors	code
Strengthening the role of the capital market in financing	The ratio of traded stock value to stock price changes	C11
	Value of shares traded	C12
	Direct investment	C13
Increase transparency	Improving the scope of investors' vision	C21
	Transaction costs	C22
Encouraging indirect investment in the stock market	Transaction volume	C31
	Specialized training courses	C32
Development of financial instruments	Institutional factors	C41
	Financial policy instruments	C42

Table 6. Effective factors and sub-factors of qualitative indicators of capital market improvement

Relative weight and priority of main factors		code	Relative weight and priority		Final weight and priority	
Strengthening the role of the capital market in financing C1	0/36 (1)	C11	0/34	2	0/123	4
		C12	0/34	1	0/124	3
		C13	0/31	3	0/113	5
Increase transparency C2	0/25 (3)	C21	0/43	2	0/109	6
		C22	0/57	1	0/142	2
Encouraging indirect investment in the stock Market C3	0/296 (2)	C31	0/63	1	0/188	1
		C32	0/37	2	0/108	7
Development of financial instruments C4	0/094 (4)	C41	0/56	1	0/052	8
		C42	0/44	2	0/042	9

According to the results obtained from the above table for each dimension of the qualitative index of capital market improvement, we can obtain the rank of the capital market improvement index at the level of dimensions through the following relationship:

$$AD=\lambda_1 AD1 + \lambda_2 AD2 + \lambda_3 AD3 + \lambda_4 AD4 \quad (5)$$

control variables:

The control variables of the research are taken from the research of Tazik and Mohammad in 2014.

$Size_{i,t}$: indicates the size of the company and is equal to the natural logarithm of the total assets of the company at the end of the year

$LEV_{i,t}$: It represents financial leverage and is calculated by dividing total debt by total assets

$MTB_{i,t}$: It is calculated by dividing the stock market value by the book value of equity.

$SG_{i,t}$: It shows the sales growth rate and is calculated from the difference between the current year's sales and the previous year's sales divided by the previous year's sales.

5- Research findings

descriptive statistics

In the table below, an overview of the data, including the number, mean, median, minimum, maximum and standard deviation of the calculated variables, is provided to test the hypothesis.

Research limitations

In this research, a questionnaire was used to collect the data of one of the variables, as a result, some people may have refused to provide real answers and gave unrealistic answers.

Hypothesis test results

The results of the hypothesis test according to the existence of heterogeneity of variance using the generalized least square method (EGLS) can be seen in the following tables.

Table 7. Descriptive statistics of research variables

Variables	Symbol	Mean	Median	Std. Dev.	Maximum	Minimum	Skewness	Kurtosis
Capital market efficiency	CME	-0/26	-0/21	0/28	0/63	-0/99	-0/22	2/54
Size	SIZE	14/68	14/46	1/57	20/76	11/12	1/01	4/62
Financial Leverage	LEV	0/55	0/55	0/20	1/82	0/03	۰/۲۱	4/40
Market to book value	MTB	2/59	2/33	1/20	6/03	0/10	0/50	2/40
Sales growth	SG	0/33	0/21	0/66	11/68	-0/90	7/31	104/19

Table 8. Hypothesis test results

First model	Sig.	
0/001 (0/00)	coefficient value	AD
	Sig.	
	Sig.	
-0/0004 (0/00)	coefficient value	Size
	Sig.	
0/001 (0/50)	coefficient value	LEV
	Sig.	
0/01 (0/00)	coefficient value	MTB
	Sig.	
-0/01 (0/24)	coefficient value	SG
	Sig.	
-0/30 (0/02)	coefficient value	C y-intercept
	Sig.	
9/70 (0/00)	coefficient value	F statistic
	Sig.	
0/68	Adjusted coefficient of determination	
1/76	Durbin-Watson statistic	

The results of the model in the above table considering that AD variable (qualitative index of capital market improvement) has a significant level (0.00). Therefore, there is a significant relationship between capital market improvement index and capital market efficiency. Therefore, the model is statistically accepted. The independent variable coefficient of the qualitative index of capital market improvement (0.001) shows that if the qualitative index of capital market improvement increases by one percent, the efficiency of the capital market increases by 0.001 percent.

6-Discussion and Conclusions

An efficient securities market is a place where the price of traded securities can correctly reflect all the information about those securities at any time. There are many sources of information and from the point of view of Scott (2011), annual reports of companies are a type of information that is valuable in terms of cost-benefit and is considered an important source of information. In addition, analysis of financial statements reveals aspects of financial statements that are related to investment decisions and capital market improvement.

Based on the theoretical foundations of this research, we found the factors and sub-factors of the qualitative indicators of the capital market. With the cooperation of 18 capital market specialists and through fuzzy Delphi, Fuzzy *DEMATEL* and fuzzy ANP methods and mathematical relationship, we were able to prioritize and rank these factors and quantitatively enter them into the research model. On the other hand, we obtained the capital market efficiency through the turnover test for each year of the company as a representative of the efficiency of the companies. The result of the hypothesis test indicates that the qualitative indicators of the improvement of the capital market have a significant relationship with the efficiency of the capital market. This means that the qualitative indicators of the improvement of the capital market increase the

efficiency of the capital market, and this causes more investors (domestic and foreign) to be attracted to the capital market.

According to the result of the hypothesis which showed that the qualitative indicators of capital market improvement increase the efficiency of the capital market, it is suggested to pay special attention to factors that are more important from the point of view of experts, such as improving the scope of investors' vision, transaction volume, institutional factors and the ratio of traded stock value to stock price changes.

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