

Value-Relevance of Accounting Information: Evidence from Iranian Emerging Stock Exchange

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Abstract—This study aims to investigate empirically the value-relevance of accounting information to domestic investors in Tehran stock exchange from 1999 to 2006. During the present research impacts of two factors, including positive vs. negative earnings and the firm size are considered as well. The authors used earnings per share and annual change of earnings per share as the income statement indices, and book value of equity per share as the balance sheet index. Return and Price models through regression analysis are deployed in order to test the research hypothesis. Results depicted that accounting information is value-relevance to domestic investors in Tehran Stock Exchange according to both studied models. However, income statement information has more value-relevance than the balance sheet information. Furthermore, positive vs. negative earnings and firm size seems to have significant impact on value-relevance of accounting information.

Keywords—Value-Relevance of Accounting Information, Iranian stock exchange, Return Model, Price Model

I. INTRODUCTION

STOCK exchange is one of the critical financing sources, for the firms which are listed in the stock market. This financing source is considered as an efficient mean to reach optimized allocation of society resources. This will be happen, through suitable decisions from investors. Taking right decisions by investors depends on obtaining suitable information from various sources. This signifies the vital role of fruitful information in developing an economy. One of the most important information sources for investors, is financial statements which presented by enlisted firms in the stock exchange. But is it useful enough? Relevance and reliability are two primary criteria that major accounting standard setting bodies such as Financial Accounting Standards Board (FASB) uses for choosing among accounting alternatives [14]. It means that, information which justifies these criteria should be useful for taking decisions. Studying the relevance and reliability of accounting information separately is difficult cause that these criteria are conflicting parameters and the amount of them are not determined in theoretical concepts of financial reporting [3]. According to above, this paper studied

the relevance and reliability of accounting information in Iran's stock exchange through studying the value relevance of accounting information as a more precise and systematic alternative, which could be an empirical operationalization of these criteria in this context.

Accounting amount will be value-relevant, i.e., have a predicted significant relation with share price, only if the amount reflects information relevant to the investors in valuing the firm and is measured reliably enough to be reflected in share prices [3]. Considering this, the paper surveyed the value relevance of Iran's stock market information by implementing regression analysis in combination to Price and Return models and proposed regression coefficients as well as R square as an Information value relevance definer.

II. LITERATURE REVIEW

Since stock exchange activist are the common user of financial statements, conducting accounting researches is the initial step of such studies from investor's viewpoint. Francis and Schipper defined four following approaches for studying the value relevance of accounting information [15]:

- A) The fundamental analysis view of value relevance
- B) The Prediction view of value relevance
- C) The information view of value relevance
- D) The measurement view of value relevance

The first approach to study the value relevance of accounting information is fundamental analysis which ensures determining natural value of corporate shares regardless to the price at which the shares are traded in capital market. According to this approach, accounting information causes change in share price trend in a similar way and with the same direction of market prices through its inherent value. In this approach, it is assumed that the market is not efficient enough, and the value relevance of financial statement content is deduced from measurement of revenues resulted from trading strategies (buying & selling) based on accounting information. Therefore, relying on inefficient market information, investors can attain unusual returns through public accounting information. This issue shows that accounting information is considered relevant only if the portfolio formed by this information, creates significant coefficient with unusual returns [4]. In the second interpretation of value relevance of accounting information which mainly common in fundamental researches field, those values are considered relevant that can be used for upcoming value evaluation of firm and foreseeing returns of the coming years. In this regard, in case financial

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statement information helps forecasting the inherent value characteristics (which originated from valuing theories), it is considered as relevant values. Consequently, the information that can be used for profit forecast, cash profit of shares and the upcoming cash flows is relevant. Most of the researches conducted in this field, underline the profit forecasting [15]. The third interpretation of the term accounting information is that the information considered as value relevant which is used by investors for share pricing [15]. Assuming that the capital market has efficient, it is studied whether or not investors really rely on such information in their decisions. The studies conducted based on this view focus on short term periods. The general purpose of such studies is examining the capital market reaction against disclosure of accounting information within short term periods like few days or several weeks before or after announcing the profit rate. Therefore, during this period, the information considered as value relevant which its disclosure or issuance causes decrease in investors' expectations and consequently increase in share price at capital market. So, the natural market metric of capital market is share returns. According to this approach, value relevance of accounting information is measured in terms of market reflections against new information disclosure. In other words, the accounting information value is relevant in case stock exchange has a meaningful reaction against information disclosure. Researchers, who use this view in their studies, typically prefer the term "information content" instead of "relevance" [5]. The fourth approach in studying the value relevance of accounting information is compatible with the measurement view in accounting and means that accounting is regarded as a measurement tool. Of course, it should be noted that in this approach, contrary to information approach, the investors does not uses completely from information, and collected information from sources which are not updated. It is understood from this approach that if one (or more) accounting item has significant relationship with stock returns or market price, the accounting item will collect and record the relevance and reliability information. The recent inference is classified in the field of indirect tests of accounting information advantages [9]. However, one of the important understandings of such a view is that accounting information can be considered relevant; because, in case due to availability of more updated information, former information had been obsolete, such information is classified as irrelevant in taking decisions [3]. Unlike the information approach, in this approach both price & return of share are used as market parameters; however, selection between these two variables depends on question type and the hypothesis rose for research. Price-based studies, examines financial statements as brief values that affected the firm up to a specified date. On the other hand, return-based studies, examines accounting figures capability in control & record of those events which affected the firm within a period [11]. In this research, the fourth approach is considered as the base on which the value relevance of accounting information can be defined as the capability of accounting figures for setting the price or return of price [22]. Because accounting figures have relevant value only when they are considered relevant by investors in their evaluations of the firm and consider them reliable for

reflection in share price [3]. Study of value relevance of accounting information with measurement approach, does not need efficient background of market. In another way, it is not necessary in such study to assume that the stock market value is real and assessed without any predilection. The sole required background in such researches is that the share price (or share return) reflects the group beliefs of investors [16]. The first study under the title of value relevance of accounting information was conducted by Amir et al. in 1993 [2]. Ohlson (1995) and Feltham & Ohlson (1995) suggested a basis to redefine the purpose of research on the relationship between financial statements and corporate value, and established a structure for modeling in such field [13, 21]. Most researches on value relevance of accounting information underline accounting earnings as a profit & loss parameter. Accounting earnings is considered as an information source and used by most of investors & analysts of financial market; because it allows them to gain a real imagination of the firms and assists in their valuing. On the basis of accrual accounting, the corporate value is a function of their future performance which has a close relationship with the generated accounting earnings [6]. In recent years, study on the value relevance of accounting information has been developed and includes book value of equity per share as a balance sheet parameter in addition to accounting earnings [7]. Through world capital market growth, the issue of value relevance of accounting information raised based on accepted accounting principles in different countries. Alford et al. (1993) found out that the accounting earnings in Australia, France, Netherland and England has more relevance for investors than in US [1]. Harries et al. (1994) compared value relevance of accounting information for the period between 1982-1991 in Germany and US. They realized that the ability of setting share price by book value of equity per share in Germany is meaningfully less than US, while the ability of setting share price by the earnings in these two countries does not have a meaningful difference [17]. Hayn (1995) studied the effect of the positive vs. negative earnings on value relevance of accounting information and claimed that the loser firms have less value relevance than profitable firms. Accordingly, if the number of loser firms is increases gradually, the value relevance of accounting information will decrease [18]. Elliott & Hanna (1996) also claimed that in case of profit & loss, the materials are effective on value relevance of accounting information after operational earnings; and in case of growth of such materials, the value relevance of accounting information decreases [12]. Collins et al. (1997) studies the change in value relevance of accounting information during 1993-1995 in US capital market [8]. They found out that the value relevance of accounting information has not decreased within that period. Although the value relevance of accounting earnings decreased during that period, the value relevance of book value of equity per share had compensated this reduction. They also studied the effect of four factors on value relevance of accounting information later on. These four factors include: (1) intangible properties, (2) noncontiguous materials, (3) the positive vs. negative earnings and (4) firm size. Through control of those four factors in Ohlson's model. Based on this, they declared these four factors as the cause of reduction in value relevance of earnings and increase in value relevance of

book value of equity per share. King & Langli(1998) studied the value relevance of accounting information in Germany, Norway and England for the period between 1982-1996. They found out that during this period the value relevance of accounting information had not decreased in countries such as Germany & England, but it had decreased in Norway in a meaningful manner [19]. Lev & Zarowin (1999) also studied the value relevance of accounting information for the period between 1996-1978. They claimed that the relevance of accounting information had decreased during that period; and the value relevance of financial reports faced a negative effect because the intangible properties had not been reported. The reason they give for their claims is that lots of expenses is incurred for intangible properties, but it is not identified as investment, while the future economic interests is expected to be obtained from such expenses [20]. Chen et al.(2001) surveyed the value relevance of accounting information in China's Capital Market during 1991-1998. They also studied the impact of factors such as the positive vs. negative earnings, firm size, earnings persistence and shares liquidation capability on the value relevance of accounting information. The results showed that accounting information has value relevance in China's capital market. Moreover, the positive vs. negative earnings and shares liquidation capability impact on value relevance of accounting information, and the firm size has significant effect only on return model [7]. Gjerde et al.(2007) studied the value relevance of accounting information in Norway's Capital Market within 1965-2004. They claimed that the value relevance of accounting information during this period has not decreased and changing from European-Continental model to American-British had positive impact on value relevance of financial reports information [16].

III. RESEARCH METHODOLOGY

Hypothesis development: Some studies about value relevance of accounting information show that accounting information in emerging capital market is value relevance [7]. Thus:

Hypothesis 1: "Accounting information is value relevance in Tehran stock exchange for investors."

The result of studies conducted based on return model show that there is more significant relationship between earnings and return in profitable firms. [18]. There are studies conducted based on price model that show reduction in value relevance of earnings and increase in value relevance of book value of equity per share during loss period [8]. Thus:

Hypothesis 2: "Positive vs. negative earnings has significant impact on value relevance of accounting information."

Based on the studies conducted by Collins et al.(1997), size factor is known as a reason for transmission of value relevance from earnings to book value of equity per share during a four-year period [8]. Thus:

Hypothesis 3: "firm size has a significant impact on value relevance of accounting information."

Sample description: The sample in this study consists of the firms which their fiscal year-end coincided end of solar year and their stock exchange was not stopped during 1999-2006 except the usual stops for holding general forum of shareholders. It consists of 106 firms providing 848 observations during the 1999–2006. All required data for this research are collected from RAHAVARD NOVIN. This is a CD-ROM database specializing in financial statements and Tehran stock market data. For each year, we retrieve from the database financial statement and stock price information needed for two valuation models used in this study. To facilitate comparisons between the two models, we use the same sample for each model.

Valuation models: The authors' chose two types of valuation models which are popular in the literature and clarified in the following. A Return model describes the relationship between stock returns and accounting earnings. Easton and Harris (1991) popularize a specific version of the annual return model including both earnings levels and earnings changes [10]. The return model is used in this current study as follows:

$$RET_{jt} = \beta_0 + \beta_1 E_{jt} / P_{jt-1} + \beta_2 (E_{jt} - E_{jt-1}) / P_{jt-1} + e_{jt}$$

Where:

RET_{jt} : annual return (including cash dividends) of firm j;

E_{jt} : annual earnings per share;

$E_{jt} - E_{jt-1}$: change of annual earnings per share;

P_{jt-1} : stock price at the beginning of the last year's annual report announcement month.

This study also employs a Price model. While Return models are heavily relied upon in market based accounting research, Price models persist in the literature [1,8]. To follow most studies in the value-relevance literature, a modified Ohlson model (1995) is used as follows:

$$MV_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + e_{jt}$$

Where:

MV_{jt} : market value per share of firm j at the end of the annual report announcement month;

BV_{jt} : book value of equity per share of firm j at year t;

E_{jt} : reported fiscal year accounting earnings per share of firm j.

IV. FINDINGS

Value relevance in Iran: The authors used pooled cross section regression & cross sectional regression to examine the value relevance of accounting information within Price & Return models. The results of cross sectional regressions (including Return & Price) are shown in Table I. In Return model, the adjusted R^2 has been decreased which implied that the Return model was unable to forecast. In other words, the independent variables of Return model gradually determine less return changes. This trend is in a way that the return model has adjusted R^2 of -0.01 at the end of the year 2005 and none of its independent variables is significant at 95% confidence level. Based on these results, the value relevance of accounting information had descending trend and had been decreased gradually. In Price model, adjusted R^2 for cross sectional regression is in a suitable level which reveals

determination of remarkable changes in share price via independent variables of the model. In this model, EPS during all years is significant at 95% confidence level and considering the Beta coefficient (standardized regression coefficient); it had always a noticeable impact on share price. The book value of equity per share does not follow a fix algorithm, and is significant only for the years "2002, 2003 & 2004". The result of price model is the same as return model and shows that the value relevance of accounting information was decreased. Contrary to return model, in price model the accounting information was value relevant during all years. To conclude in comparison with the period under study in the present research, the pooled cross section regression shall be assessed based on both models.

TABLE I
RESULTS OF ESTIMATING CROSS SECTIONAL REGRESSION

Return Model: $RET_{jt} = \beta_0 + \beta_1 E_{jt}/P_{jt-1} + \beta_2 (E_{jt} - E_{jt-1})/P_{jt-1} + e_{jt}$							
Year	adjusted R^2	E/P			$\Delta E/P$		
		β_1	t	P-value	β_2	t	P-value
1999	0.53	281.60	7.54	0.00	-0.47	-0.07	0.95
2000	0.30	429.73	6.35	0.00	-64.97	-1.23	0.22
2001	0.12	-159.84	-0.91	0.36	540.13	3.54	0.00
2002	0.25	364.31	2.97	0.00	315.31	2.53	0.01
2003	0.23	334.89	4.16	0.00	62.11	0.69	0.49
2004	0.07	93.15	1.04	0.30	144.09	2.64	0.01
2005	0.16	-14.24	-0.71	0.48	62.73	3.53	0.00
2006	-0.01	-6.01	-0.17	0.86	32.92	0.89	0.37
Price Model: $MV_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + e_{jt}$							
Year	adjusted R^2	BV			E		
		β_1	t	P-value	β_2	t	P-value
1999	0.86	0.16	0.68	0.50	3.07	24.57	0.00
2000	0.84	-0.06	-0.16	0.87	5.26	22.24	0.00
2001	0.57	-0.26	-0.39	0.70	7.37	11.35	0.00
2002	0.67	-4.33	-4.86	0.00	15.59	14.01	0.00
2003	0.62	-1.58	-2.39	0.02	9.01	12.44	0.00
2004	0.75	-1.82	-2.78	0.01	8.95	16.84	0.00
2005	0.34	-0.39	-0.64	0.52	5.09	7.35	0.00
2006	0.63	-0.01	-0.03	0.98	5.69	13.23	0.00

We omit the data with distance more than three standard deviation from regression to prevent the impact of outlier on the present research. The number of outliers omitted from pooled cross section regression of the return was 12 cases (year- firm), and in pooled cross section regression of the price was 18 cases (year- firm). The results of assessing the pooled cross section regression of both models are shown in Table II. The return model is significant at 95% confidence level. The adjusted R^2 of this model is equal to 0.25 that shows two independent return models (earning per share in comparison

with the share price in the former year and the annual changes of earning per share in comparison with the share price of the former year) specify 25% of return share changes. Both variables of independent return models are significant. In addition, the Beta coefficient of independent variables (standardized coefficient) reveals that the E /P have more impact on return than the ΔE /P. Then 1 unit change in this variable causes 0.43 unit change in the return. While 1 unit change in ΔE /P causes 0.12 unit change in the return.

The price model is significant at 95% confidence level and its adjusted R^2 is equal to 0.60 which shows that the book value of equity per share and EPS will explain 60% of share price variation. Earnings per share and the book value of equity per share in this model are significant at 95% confidence level which shows the impact of this variable on share price. Considering the Beta coefficient, one unit change in EPS causes 0.76 units change in price and 0.05 units change in book value of equity per share. In general, the result of pooled cross section regression of the two models indicates that the accounting information given in the profit & loss statement and the balance sheet is not value relevant for the investors at Tehran's Stock Exchange. However, the earning per share is more value relevant for investors as a profit & loss index.

TABLE II
RESULT OF POOLED CROSS SECTION REGRESSION FOR RETURN & PRICE

Return Model: $RET_{jt} = \beta_0 + \beta_1 E_{jt}/P_{jt-1} + \beta_2 (E_{jt} - E_{jt-1})/P_{jt-1} + e_{jt}$								
adjusted R^2	E/P				$\Delta E/P$			
	β_1	Beta	t	P-value	β_2	Beta	t	P-value
0.25	194.89	0.43	12.06	0.00	17.24	0.12	3.35	0.00
Price Model: $MV_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + e_{jt}$								
adjusted R^2	BV				E			
	β_1	Beta	t	P-value	β_2	Beta	t	P-value
0.60	0.32	0.05	2.01	0.04	5.08	0.76	33.13	0.00

Positive versus negative earnings: We use a dummy variable to test second hypothesis. The amount of this variable for firms' whit negative earnings is 1 and for the others is 0. Results of pooled cross section regression assessment are given in Table III. In return model, E /P is significant at 95% confidence level for loser firm. Of course, this variable has lower Beta coefficient than all firms which indicates that, E /P is more value relevant at firms' whit positive earnings. The ΔE /P is not significant for loser firms. In price model, the EPS and book value of equity per share for loser firms are not significant; however, these variables are significant for all firms. Considering the above results, it can be concluded that investors in Tehran stock Exchange distinguish between profitable and loser firms. This could affect on value relevant of accounting information. Therefore, the second assumption is acceptable. On the other hand, the results reveal that accounting information is more value relevant for profitable firms than loser firms for investors.

TABLE III

RESULTS OF POOLED REGRESSION FOR FIRMS' WHIT POSITIVE EARNINGS
VERSUS FIRMS' WHIT NEGATIVE EARNINGS

Return Model: $RET_{jt} = \beta_0 + \beta_1 E_{jt}/P_{jt-1} + \beta_2 (E_{jt} - E_{jt-1})/P_{jt-1} + \beta_3 [D \times (E_t/P_{t-1})] + \beta_4 [D \times (\Delta E_t/P_{t-1})] + \beta_5 D + e_{jt}$								
adjusted R ²	Variables							
	E/P		D×(E/P)		ΔE/P		D×(ΔE/P)	
	Beta	P-value	Beta	P-value	Beta	P-value	Beta	P-value
0.27	0.50	0.00	-0.13	0.00	0.11	0.01	-0.03	0.40
Price Model: $MV_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + \beta_3 (D \times BV_t) + \beta_4 (D \times E_t) + \beta_5 D + e_{jt}$								
adjusted R ²	Variables							
	BV		D× BV		E		D× E	
	Beta	P-value	Beta	P-value	Beta	P-value	Beta	P-value
0.60	0.05	0.03	-0.02	0.80	0.77	0.00	-0.03	0.46

Large versus small firms: To examine impact of firm size on value relevance of accounting information, liked the second hypothesis testing, a dummy variable is defined and incorporated to the models. In this regard, the data (year- firm) should be divided into two equal sections based on natural logarithm of firm size in the past year. The value of dummy variable is 1 for large firms and 0 for small firms. Results of pooled cross section regression assessment for Large and small firms are given in Table IV. For Large firms, in Return model, independent variables aren't significant.

TABLE IV

RESULTS OF POOLED REGRESSION FOR LARGE AND SMALL FIRMS

Return Model: $RET_{jt} = \beta_0 + \beta_1 E_{jt}/P_{jt-1} + \beta_2 (E_{jt} - E_{jt-1})/P_{jt-1} + \beta_3 [D \times (E_t/P_{t-1})] + \beta_4 [D \times (\Delta E_t/P_{t-1})] + \beta_5 D + e_{jt}$								
adjusted R ²	Variables							
	E/P		D×(E/P)		ΔE/P		D×(ΔE/P)	
	Beta	P-value	Beta	P-value	Beta	P-value	Beta	P-value
0.25	0.41	0.00	0.05	0.44	0.13	0.00	-0.02	0.55
Price Model: $MV_{jt} = \beta_0 + \beta_1 BV_{jt} + \beta_2 E_{jt} + \beta_3 (D \times BV_t) + \beta_4 (D \times E_t) + \beta_5 D + e_{jt}$								
adjusted R ²	Variables							
	BV		D× BV		E		D× E	
	Beta	P-value	Beta	P-value	Beta	P-value	Beta	P-value
0.65	0.08	0.01	-0.08	0.09	0.51	0.00	0.34	0.00

For Price model, earnings per share within large firms and all other firms is significant. Of course, the Beta coefficient of this variable for all firms is higher. The book value of equity per share is not significant at 95% confidence level for large firms too. Considering the results of Price and Return models the firm size affects the value relevance of accounting information. In other words, the investors distinguish the accounting information of Large and small firms in valuation of equity.

V. SUMMARY AND CONCLUSION

Based on the present study, accounting information in Tehran's stock Exchange is value relevant. Of course, information value stipulated in profit and loss statement for investor is more and value relevance of accounting information has decreased gradually. Adjusted R² of Return and Price models are 25% and 60% respectively. These results can be considered similar to the other studies all around the world.

Adjusted R² of Return model in Alford et al [1] research in US is equal to 12.8% and 15.19% in outside US. Based on Chen et al research, adjusted R² for Return and Price models is 11.2 and 25% respectively [7]. Of course, the difference in value relevance of accounting information stipulated in profit and loss statement and balance sheet for investors in Chinese stock Exchange is too low. Adjusted R² of the two models in this research is more than other similar researches, and indicates that the value of accounting information in Tehran's stock Exchange during 1999-2006 is more relevant than the studied period in the above researches and in related capital markets. The results indicate that positive vs. negative earnings and firm size affected the value relevance of accounting information.

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