Journal of Policy Research, 9(1), 28-37.
https://jprpk.com
https://doi.org/10.5281/zenodo.7726265

Value Relevance of Accounting Information in an Emerging Stock Market: The Case of Pakistan

Fahim Javed[1], Nargis Akhtar[2], Muhammad Fayyaz Sheikh[3], Muhammad Shahid Rasheed[4]

Abstract

This study aims to empirically examine the value relevance of accounting information for the listed firms in an emerging stock market. By following the recommendations of Kothari and Zimmerman (1995), we use both the price and the return models to investigate whether the financial statements of PSX listed firms meet the criteria or relevance and reliability as highlighted in the conceptual framework 2010. This study is based on annual data of all the non-financial firms listed in Pakistan Stock Exchange (PSX). Overall findings of our study confirm that accounting information is value relevant to the investors in PSX, thereby giving evidence that financial statements achieve their primary objectives. Further, we examine the impact of new accounting standards on the value relevance of accounting information. Surprisingly, we find that new accounting standards have resulted in the declining the value relevance of accounting data. Finally, we find that investors in PSX distinguish accounting information based on the auditor type, earnings sign and firm size. Our findings are robust when controlling for other factors that may affect our regression results.

***Keywords*:** Value relevance of accounting information; IFRS; Pakistan stock exchange; emerging stock market

1. Introduction

Stock market is a major source of funds to fulfill the financial needs of listed firms. It is also considered as an efficient source for optimum allocation of resources however the optimum allocation can only happen if the investors make suitable decisions. Investors are largely dependent on readily available information to make right decisions. This shows the important role of fruitful information in developing an economy (Ghayoumi et al., 2011; Sulehri & Ali, 2020; Audi et al., 2022). Among the different sources of information to assess the performance of a company, financial statements are a major source of information for the investors.

International Accounting Standards Committee (IASC) and its successor body International Accounting Standards Board (IASB) issued a conceptual framework, which deals with the basic objectives of financial reporting and the qualitative characteristics that the financial statements must possess. "The basic objective of financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit. If financial information is to be useful, it must be relevant and faithfully represent what it purports to represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely and understandable" (Conceptual Framework, 2010)[5].

Furthermore the conceptual framework describes relevance and faithful presentation as two basic qualitative characteristics of financial reports.

- "Relevant financial information is capable of making a difference in the decisions made by users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or are already aware of it from other sources."
- "To be useful, financial information must not only represent relevant phenomena, but it must also faithfully represent the phenomena that it purports to represent. To be a perfectly faithful representation, a depiction would have three characteristics. It would be complete, neutral and free from error. Of course, perfection is seldom, if ever, achievable" (Conceptual Framework, 2010).

Empirical Research that examines the relationship between Stock market numbers and financial reports is referred to as capital market based accounting research (CMBAR). The seminal study of Ball & Brown (1968) is considered as the origin of modern CMBAR. Researchers have categorized it into different subfields and value relevance is one of them (Beaver, 2002 & Kothari, 2001). The first ever study that used the term Value Relevance to describe the association between accounting measures and market data conducted by Amir et al., (1993).

Researchers have defined the construct of value relevance differently. Barth et al., (2001) simply states that "value relevance research examines association between accounting amounts and equity market values". A more thorough discussion on the concept is presented by Francis and Schipper (1999) and they have offered four approaches to examine the value relevance of accounting information. The fourth approach, measurement view to examine the value relevance is consistent with our study, which defines the value relevance as "the ability of accounting numbers to summarize the information underlying the stock prices. Thus the value relevance is indicated as the statistical association between financial information and stock prices or return"

Differences in the social, legal, economic, political circumstances and diverse needs of potential users resulted in a variety of defining and recognition criteria of the elements of financial reports in different countries. An important

[1] COMSATS University Islamabad (CUI), Vehari Campus, Vehari, Pakistan
[2] COMSATS University Islamabad (CUI), Vehari Campus, Vehari, Pakistan
[3] Lyallpur Business School, Government College University Faisalabad, Faisalabad, Pakistan
[4] Malik Firoz Khan Noon Business School, University of Sargodha, Sargodha, Pakistan
[5] The conceptual framework provides only guidelines to standard setters and potential users of these standards. In case a specific accounting standard overlaps or contradicts with the conceptual framework, the requirements of accounting standard prevail.

goal of IASC and its successor body IASB is to provide an internationally acceptable set of high quality financial reporting standards. To achieve this goal, they have issued principles-based standards that better reflect a firm's economic position and performance and taken steps to remove allowable accounting alternatives (Barth et al. 2008).
Global implementation of International Financial Reporting Standards (IFRS)[6] has resulted in an intense debate in CMBAR throughout the world in the past few years. Studies that support the adoption of IFRS argue that the adoption will increase the quality of financial reporting and it will also be beneficial for the investors (Daske et al. 2008). While the opponents argue that "a single set of standards may not be suitable for all settings and thus may not uniformly improve relevance and reliability due to differences among countries" (Soderstrom & Sun, 2007). Barth et al (2008) finds that "firms applying IFRS exhibit less earnings management, more timely loss recognition and more value relevance of accounting data". Barth, et al., (2001) indicate that high accounting quality improves association between stock prices and accounting variables because economic conditions of firms are better reflected by higher earnings quality. Better accounting standards decrease the opportunistic behavior and improve accounting earnings that have higher value relevance of accounting information. Conversely, IFRS may also result in declining the accounting quality and value relevance if the new standards fail to capture and report the true financial performance and economic position of firms (Barth et al. 2008; Soderstrom & Sun, 2007; Sulehri et al., 2022).
The existing literature provides contradictory evidence about the impact of IFRS adoption on value relevance of accounting information. Some studies show that adoption led to increase the value relevance while the others empirically find that new accounting standards resulted in declining the value relevance of accounting data. Even some studies find no statistical difference in the results of pre and post IFRS adoption periods (Khanagha 2011; Alali & Foote 2012; Tsalavoutas et al. 2009; Barth et al. 2008; Filip 2010 & Kargın, 2013; Khuhro et al. 2015; Rasheed et al. 2018; Shahbaz et al., 2019).
This study empirically investigates, whether the financial statements achieve their primary objectives by examining the usefulness of accounting data in explaining the variation in annual stock returns or stock prices, in Pakistan Stock Exchange (PSX). Secondly, the study contributes to the debate in existing literature over the adoption of IFRS by providing evidence from the emerging stock market of Pakistan. Alali and Foote (2012) notes that studies conducted by using single country data lets us compare the firms that face similar political, legal and economic factors that affect their operations. Investigating the issue in emerging stock markets such as Pakistan is also interesting because emerging stock markets lack market efficiency and corporate governance mechanisms are not fully established.
Previously, Ashraf and Ghani (2005) reported that in the absence of investor protection and weak enforcement mechanisms, the IFRS adoption has not improved the quality of financial reporting in Pakistan. In spite of a long period of war against terrorism along with political instability in the country, PSX has experienced many bullish trends during the last decade, yet it was declared as best performing stock market in 2002 and the best performing emerging markets in 2008. Finally, we explore three factors that affect the value relevance of accounting information i.e. Auditor type, positive vs. negative earning and size of firm.
So far there is no published research into our knowledge on value relevance of IFRS adoption with respect to Pakistani context. Therefore this study fills the gap in existing literature by investigating the impact of IFRS adoption on value relevance of Information in PSX.

2. Literature Review

Literature examining the relationship between stock market values and accounting variables roots back to Miller and Modigliani (1966). However the seminal articles of Ball and Brown (1968) and Beaver (1968) provide a theoretical base to the idea of Capital Market Based Accounting Research (CMBAR). Since then numerous studies have investigated different aspects of value relevance. Over the past few years, global implementation of IFRS has resulted in an intense debate in CMBAR on the improvement of accounting quality.
Alali and Foote (2012) examined the value relevance of IFRS adoption in Abu Dhabi Stock Exchange (ADX). Results of pooled sample show significant positive association between accounting earnings and cumulative returns and stock prices. However, the Cross sectional regression results show that accounting information may not be value relevant under bearish trends as characterized by rumors and speculations. Ghayoumi et al., (2011) examined the value relevance of accounting information in Tehran Stock Exchange, over the period 1999 to 2006. They find that the relevance of accounting information has declined overtime. The results of the price model indicate that income statement has more value relevance as compared to balance sheet and that earnings type and firm size have significant impact on value relevance of accounting information.
Khanagha (2011) provided mixed evidence on the impact of IFRS adoption in Bahrain and United Arab Emirates (UAE) based on Regression variations approach[7] and Portfolio return approach[8]. Results based on post reforms periods in Bahrain exhibit significant increase of R^2 and which indicates that the reforms improved the value relevance

[6] "IFRS are International financial reporting standards issued by the International Accounting Standards Board (IASB). It is the successor body of the International Accounting Standards Committee (IASC), the standard setting body for the period 1974 to 2001. Nowadays IASB issue accounting standards which are known as IFRS whereas accounting standards issued by IASC are known as International accounting standards (IAS)".
[7] Earning return model of Easton and Harris (1991) along with price valuation framework of Ohlson (1995) are two popular and frequently used approaches in accounting literature.
[8] Previously used by Francis & Schipper (1999) which measures the value relevance as total return that a portfolio could earn based on perfect foresight of earning.

of accounting numbers in Bahrain stock exchange. However, in UAE the Post IFRS reforms period reflects a decline in the explanatory power of the model. Khanagha (2011) argues that this overtime decline in value relevancy is driven by increased influence of non-accounting factors.

Tsalavoutas, Andre, and Evans (2009) examine the impact of mandatory IFRS adoption on the value relevance of accounting data, in the Greek market. They find no substantial change in the net profit after tax or book value of shareholder's equity in the post reforms period. Tsalavoutas et al., (2010) conclude that accounting reforms are not sufficient itself to change perception of market participants. However invertors regard extra information provided by reconciliation of local GAAP and IFRS as incrementally value relevant. Barth, Landsman, and Lang (2008) examined whether the adoption of "International Accounting Standards" (IAS) is associated with higher accounting quality or not. Based on a sample of 321 firms from 21 different countries over a period of 1994 to 2003 they find that "firms applying IFRS exhibit less earnings management, more timely loss recognition and more value relevance of accounting data".

Ball (2006) suggests that "IFRS reforms will be ineffective if they are not followed by change in fundamental economic and political factors affecting financial reporting". Filip (2010) investigated the impact of the mandatory IFRS implemented along with economic reforms on the value relevance of accounting earnings in Romania for the period 1997 to 2004. The empirical results show that earnings level and change in earning level are highly associated with market values. However, change in earnings results in the puzzling negative coefficient. Filip (2010) argues that inflationary economic conditions seem to adversely affect the value relevancy in Romania. Absence of alternative reliable sources of information along with low transparency in emerging markets may result in such results. Katerina (2006) reported similar findings in the Czech Republic[9]. Additionally, he finds that the effect of the mandatory IFRS adoption is more significant for small firms.

2.1 Accounting Institutional Settings along with Stock Market Developments in Pakistan

Beaver (2002) notes that value relevance studies need detailed knowledge of accounting standards, institutions and specific features of reported accounting numbers. The history of Pakistani equity stock market roots back to September 1947, at its conception only five companies were listed with paid up capital of 37 million Rupees[10]. Initially, Pakistan adopted the "Companies act" of 1913 and audit rules 1932 (Saeed, 1993). Accounting professionals formed a private body, Pakistan Institute of Auditors (PIA) in 1952 to protect their interests and to discuss critical accounting matters with the government of Pakistan, which paved the way for the formation of "Institute of Chartered Accountants of Pakistan" (ICAP) in 1961. A semi-autonomous institution, Securities and Exchange Authority was created in 1979 to improve the financial reporting practices in Pakistan. The authority made it mandatory for listed firms to file semiannual reports.

The Companies Ordinance 1984 required the listed firms to meet the disclosure requirements in Fourth schedule of the Ordinance. Non-listed firms are only required to comply with fifth the schedule of the Ordinance, while preparing financial reports. Along with other additional disclosure requirements, Companies Ordinance 1984 contains some critical requirements about disclosure of audit fee, directors and chief executive's remuneration.

An index comprising 100 listed firms of PSX introduced in 1991 with base points of 1000, so that market's performance could be compared over time. The Pakistani equity market ranked third among emerging markets by International Finance Corporation (IFC) in terms of performance in 1991. Securities and Exchange Commission of Pakistan (SECP) formed in 1999, which in turn issued Code of Corporate Governance (CCG) in 2002 to improve transparency, governance and to protect invertor's interest.

The CCG was an important milestone in developing the regulatory mechanisms of capital markets in Pakistan, it required all companies to prepare and circulate audited financial reports within four months, after the completion of fiscal year. Previously companies Ordinance 1984 mandated all companies to publish their annual accounts within 6 months after ending their fiscal year. Ashraf and Ghani (2005) points out that "Pakistan also faces typical challenges of emerging economies, such as loan defaults, large scale tax evasion, and nonpayment of dividends to shareholders over a long period of time. The purpose of CCG was to address such problems and to boost up investor's confidence in the functioning of corporate entities". In response to these efforts, the equity market witnessed a sharp increase in trading activity and index points in the first ten years of this century. PSX was declared as the best performing stock market with respect to percent growth in market index in 2002 (Iqbal & Brooks, 2007).

Pakistan decided to adopt IFRS locally in 2004 but its implementation started in 2007. In the light of recommendations of Institute of Chartered Accountants of Pakistan (ICAP), Securities and Exchange Commission of Pakistan (SECP) adopts new accounting standards (Badshah et al. 2013). ICAP approves all new standards individually, then SECP issues notification of its implementation. In case, if any directives of SECP or State Bank of Pakistan (SBP) in case of banks differs from such standards then directives of SBP or SECP would override the requirements of specific standard.

2.2 Hypothesis Development

Eccher and Healy (2003) claims that "emerging markets may lack the infrastructure to implement the accounting standards and thus accounting information in the emerging stock markets may be less value relevant", on the other hand different studies on value relevance show that Accounting information reported under IFRS in the emerging

[9] "The negative coefficient suggests, assuming random walk in earnings that the market can see whether the change is transitory and that the earnings will revert to a normal level in the next accounting period."

[10] (Hussain & Qasim, 1997) Provided a detailed analysis on the 50 years of Pakistani equity performance

stock markets is value relevant (Alali & Foote, 2012; Ghayoumi et al, 2011; Khalil et al., 2018). Pakistan stock exchange is also an emerging stock market in south Asia and listed companies are required to report their financial statements under IFRS, so we expect strong association between accounting numbers and stock market data.

H 1: "Accounting information reported under IFRS is value relevant, for the investors in PSX"

Prior evidence on value relevance indicates that development in the stock markets results in improved investor's confidence which is reflected in the increased magnitude of regression coefficients (Alali & Foote, 2012). In the past decade, the inflationary situation along with the war against terror in Pakistan resulted in many bearish and bullish trends in PSX. However trading volume and market capitalization of listed firms has increased many times and PSX hit its peak in April 2008. So we expect that the overtime value relevance of accounting information has increased.

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

Size of a firm is an important factor that affects value relevance. Collins et al., (1997) claimed that size of a firm is a major reason that caused a shift from the value relevance of earnings to the value relevance of book value for the price model. Large firms have more attention in the media and investors have many alternative sources of information that results in less value relevance of accounting information. On the other hand small firms are rarely discussed in media or by stock market analysts, so the accounting information is a major source of information about them, resulting in strong association among accounting numbers and stock market values (Chen et al, 2001; Ghayumi et al. 2011).

H 3: "Firm size has a significant impact on value relevance of accounting information"

Prior literature indicates that audit quality also has a significant role in explaining the value relevance. The firms whose financial reports are audited by big four audit clients, Investors perceive information from such reports as more value relevant as compared to those which are audited by non-big four auditors (Chen et al, 2001; Alali & Foote, 2012).

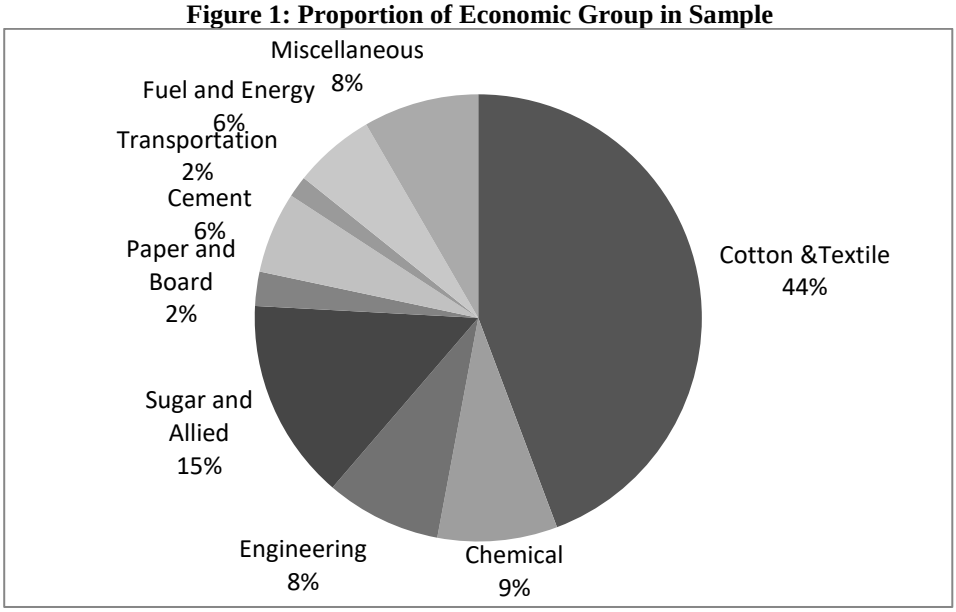
H 4: "Firms audited by Big 4 auditors have more value relevance of accounting information"

3. Research Methodology

3.1 Data and Sample

The study includes annual data over a span of 12 fiscal years (2000 to 2011). The reason for selecting this sample period is to examine the value relevance around the adoption of new accounting standards. We include all the firms in the non-financial sector except those whose data was not available. Out of total 399 non-financial companies listed in PSX our final sample consist of 321 companies. The figure below shows the distribution of final sample firms into different economic groups.

Figure 1: Proportion of Economic Group in Sample



3.2 Value Relevance Models

Easton and Harris (1991) and Ohlson (1995) models are widely used in value relevance literature. According to Barth et al., (2001) "both models are alternative approaches to each other, to examine value relevance. The economic difference between the price and return models is that the former determines what is reflected in firm value, while the latter determines what is reflected in changes in firm value over a specific period of time". Chen et al (2001) state that the scope of return model is narrow because it only incorporates the value relevance of earnings in explaining annual return whereas valuation framework provided by Ohlson (1995) expands the scope by relating market value of a firm to both earnings and book value. Kothari and Zimmerman (1995) suggest combined use of price and return models in order to overcome the weaknesses of each model. They claimed that the current earnings used as a proxy for expected future cash flow of market expectations contain stale components that the market had anticipated previously. This stale component is irrelevant in explaining current returns and results in downward bias in slope coefficients.

However, current prices in the price model reflect cumulative effects of earnings information therefore independent variables are unbiased.

3.2.1 Return Model

Easton and Harris (1991) Return based approach examines relationship between the accounting earnings, earnings change and annual stock returns. It is widely used in value relevance research. The most common form of return model is:

$$\boldsymbol{RET_{jt} = \beta_0 + \beta_1 \frac{EPS_{jt}}{P_{jt-1}} + \beta_2 \frac{\Delta EPS_{jt}}{P_{jt-1}} + \varepsilon_{jt}}$$

Where;

$\boldsymbol{RET_{jt}}$ =Annual return (including cash dividends) of firm j at year t

$\boldsymbol{RET_{jt}}$ = Annual earnings per share

$\Delta\boldsymbol{EPS_{jt}}$ = Change of annual earnings per share

$\boldsymbol{P_{jt-1}}$ = Stock price at the beginning of the last year

ε_{jt} = is error term

3.2.2 Price Model

Ohlson (1995) price model includes income statement measure (EPS) as well as balance sheet measure (BVPS) in explaining stock prices. The price model shows how stock prices are related to accounting variables. Ohlson (1995) became extremely popular and is widely used in value relevance literature.

$$\boldsymbol{MV_{jt} = \beta_0 + \beta_1 BVPS_{jt} + \beta_2 EPS_{jt} + \varepsilon_{jt}}$$

Where,

$\boldsymbol{MV_{jt}}$= Market value per share of firm j at year t

$\boldsymbol{BVPS_{jt}}$ = Book value of equity per share of firm j at year t

$\boldsymbol{EPS_{jt}}$ = Earnings per share of firm j at year t

ε_{jt} = is error term

4. Results

4.1. Descriptive Statistics

Panel A of Table 1 provides descriptive statistics for pooled sample and panel B of Table 1 presents correlation matrix for all the variables of both models (Return and Price).

Table 1 Panel A: Descriptive Statistics (Pooled Sample)

Variables	N	Mean	SD	Max	Min
RET	3852	25.18	74.48	344.75	-76.20
Eps/P_{t-1}	3852	-0.01	1.31	5.38	-6.77
$\Delta Eps/P_{t-1}$	3852	0.13	1.41	7.37	-5.49
MV	3852	61.18	209.28	5565.80	0.10
Eps	3852	5.76	16.92	98.75	-28.66
Bvps	3852	92.93	98.64	709.26	-63.17

Table 1 Panel B: Correlation Matrix

Variables	RET	EPS/PT-1	ΔEPS/PT-1	MV	EPS	BVPS
RET	1.000	0.229	0.187	0.055	0.184	0.005
EPS/P_{t-1}	0.229	1.000	0.541	0.036	0.424	0.138
$\Delta EPS/P_{t-1}$	0.187	0.541	1.000	-0.018	0.209	0.007
MV	0.055	0.036	-0.018	1.000	0.528	0.392
EPS	0.184	0.424	0.209	0.528	1.000	0.500
BVPS	0.005	0.138	0.007	0.392	0.500	1.000

Notes: RET is annual return, the dependent variable in return model. We compute annual return inclusive of cash dividend as $RET = Div + (P_t - P_{t-1})/P_{t-1}$. EPS/PT-1 is the earnings per share deflated by opening price per share. ΔEPS represents change in earnings per share deflated by opening price per share, we calculated it as $EPS_{jt} - EPS_{jt-1}$, MV is the market price of firm j at time t. EPS is per share earnings after tax and it is calculated by dividing total outstanding shares to net profit after tax EPS = Net profit after tax/Net profit after tax. BVPS is book value per share, BVPS = Total Assets − (Liabilities + prefference shares)/ Total shars outstandings

4.2 Pooled Regression

In order to test our first hypothesis we estimated pooled sample for both Price and Return models, table 4.2 Panel A, presents the regression estimates of the return model. The coefficient of deflated earnings, also known as Earnings Response Coefficient (ERC) and coefficient of surprise earnings (ΔEPS) is positive and significant at 1%. The R^2 (explanatory power of model) shows that the accounting variables in the return model explain 5.8% variation in the annual return. Table 4.2 panel B presents regression estimates for the price model. Overall the model explains 30% variation in market value. The measure of income statement (EPS) and the measure of balance sheet (BVPS) are positively associated with market value at 1% level of significance. However, the magnitude of the coefficient of EPS

is significantly greater in size than BVPS, which indicates that the investors perceive EPS as a more value relevant variable as compared to BVPS.

Burgstahler and Dichev, (1997) provided a possible explanation by arguing that earnings works as a measure indicating how well current resources of a firm are utilized while the book value indicates firm's value without taking into account the current utilization of firm's resources. When the firms earn high profits and the ratio of EPS is high, it is expected that managers will continue the current use of resources. So investors consider earnings as a key determinant of equity value. While the firms face losses and EPS is low, it is more likely that managers start adapting better alternative to use their resources. In such cases, equity value can be better determined by Book Value.

The statistical significance of the coefficients in both models clearly shows that all the variables are value relevant. The overall results of both models reject the null hypothesis that accounting information is not value relevant and confirms that investors in PSX perceive accounting information presented in financial statements, Aforementioned results[11] are consistent with Alali and Foote, (2012) and Liu and Liu (2007), who conducted similar studies in other emerging stock markets of UAE and China respectively.

Table 2: Pooled Regression Results

Panel A, Return Model: $\mathbf{RET_{jt} = \beta_0 + \beta_1 \frac{EPS_{jt}}{P_{jt-1}} + \beta_2 \frac{\Delta EPS_{jt}}{P_{jt-1}} + \varepsilon_{jt}}$					
Years	β_0	EPS / P_{t-1}	ΔEPS / P_{t-1}	R^2	F-Value
2000 – 2011	24.67***	10.29***	4.69***	0.05	119.51***
Panel B, Price Model: $\mathbf{MV_{jt} = \beta_0 + \beta_1 EPS_{jt} + \beta_2 BVPS_{jt} + \varepsilon_{jt}}$					
Years	β_0	EPS	BVPS	R^2	F-Value
2000 – 2011	0.36***	5.47***	0.36***	0.30	830.91***

Notes: RET is annual return, the dependent variable in return model. We calculated annual return inclusive of cash dividend as RET= Div + $(P_t - P_{t-1})/P_{t-1}$. EPS/PT-1 is the per share earnings which is deflated by per share opening price. ΔEPS represents change in per share earnings deflated by opening price per share, we calculated is as, $EPS_{jt} - EPS_{jt-1}$, MV is the market price. EPS represents per share earnings after tax and it is calculated by dividing total outstanding shares to net profit after tax EPS = Net profit after tax/Net profit after tax. BVPS is per share book value: BVPS = Total Assets − (Liabilities + prefference shares)/ Number of shars outstandings. We conducted additional estimations after controlling for year and industry effect in pre and post sample regressions; however we observed no qualitative change in our results, so we stick to reports our main sample results. In this study we winsorized all continuous variables 1 % from top and bottom. *** represents significance levels at 0.01

4.3 Pre and Post IFRS Adoption Analysis

In the second part, we examine the impact of IFRS adoption on value relevance of accounting variables in Pakistan. We split our pooled sample into two equal parts and categorize the period of 2000 to 2004 as pre IFRS adoption period while the post IFRS sample period consists of year 2007 to 2011. To batter examine the impact of new standards, we omit two years observations from our sample considering it as transitory period.

Table 3 panel A, exhibits the regression estimates of annual return model, before and after the accounting reforms. EPS and ΔEPS in pre adoption period are positive and significantly related to the dependent variable. Both explanatory variables collectively explain 8.32% variation in annual return. While the post IFRS reforms results exhibit significantly different results. Significance level of ΔEPS decreases to 5%, while the magnitude of coefficients of both variables also decreases along with the explanatory power of the model. This shows that the new accounting standards resulted in declined value relevance of accounting information in Pakistan. Results of price model presented in panel B of table 4.3 also confirms the findings of return model. In pre IFRS adoption (2000-2004) period, both accounting variables (EPS and BVPS) are positively and significant associated with the Market Value and explain 32% variation. In contrast to return model, post IFRS adoption period, coefficient size of explanatory variables increases in price model. However, minor decline in the explanatory power of model is evidenced during the period 2007 to 2011.

Table 3: Pre and Post IFRS Adoption Regression Results

Panel A, Return Model: $\mathbf{RET_{jt} = \beta_0 + \beta_1 \frac{EPS_{jt}}{P_{jt-1}} + \beta_2 \frac{\Delta EPS_{jt}}{P_{jt-1}} + \varepsilon_{jt}}$					
Years	β_0	EPS / P_{t-1}	ΔEPS / P_{t-1}	R^2	F-Value
2000 – 2004	46.16***	11.78***	7.16***	0.08	72.77***
2007 – 2011	8.23***	7.77***	3.30**	0.04	43.68***
Panel B, Price Model: $\mathbf{MV_{jt} = \beta_0 + \beta_1 EPS_{jt} + \beta_2 BVPS_{jt} + \varepsilon_{jt}}$					
Years	β_0	EPS	BVPS	R^2	F-Value
2000 – 2004	11.76***	3.51***	0.25***	0.32	379.93***
2007 – 2011	14.37***	6.34***	0.36***	0.30	350.58***

Notes: RET is annual return, the dependent variable in return model. We calculated annual return inclusive of cash dividend as RET= Div + $(P_t - P_{t-1})/P_{t-1}$. EPS/PT-1 is the per share earnings which is deflated by per share opening price. ΔEPS represents change in per share earnings deflated by opening price per share, we calculated is as, $EPS_{jt} - EPS_{jt-1}$, MV is the market price. EPS represents per share earnings after tax and it is calculated by dividing total outstanding shares to net profit after tax

[11] In order to restrict the outlier's impact we winsorized all continuous variables at one percentile from top and bottom. The winsorization process helps deal with outlier values without reducing in sample size, by replacing them with values in the second percentile. We also control for year effects and industry sectors effects by introducing dummy variables in the pooled sample regressions. However we could not find any qualitative difference in the results of regression models, so we stick to reporting results of our main models.

EPS = Net profit after tax/Net profit after tax. BVPS is per share book value, BVPS = Total Assets − (Liabilities + prefference shares)/ Number of shars outstandings. We conducted additional estimations after controlling for year and industry effect in pre and post sample regressions; however we observed no qualitative change in our results, so we stick to reports our main sample results. In this study we winsorized all continuous variables 1 % from top and bottom. *** represents significance levels at 0.01

Aforementioned decline of explanatory power of both (price and Return) models and reduction in coefficient size, post IFRS reforms period exhibits weak association between accounting variables and dependent variables (Market price and Return). These findings clearly indicate that the decision to adopt and implement the IFRS in Pakistan has resulted in declining the value relevance of accounting data. Tsalavoutas et al., (2010) and Khanagha, (2011) reported similar findings for Greece and UAE respectively.

4.4 Factors Affecting Value Relevance

4.4.1 Big 4 vs. Non-Big 4 Auditors

To investigate whether investors in PSX differentiate firms based on auditor type, we divided our sample based on firms audited by Big and Non-Big 4 auditors. Out of a total sample of 321 firms, 117 firms are audited by Big 4 audit firms, while 204 firms are audited by Non-Big 4 auditors and we used separate regression estimates for each category. The results are presented in panel A of table 4.

We expect that increased audit quality in big 4 audit firms improves the quality of earnings and results in higher value relevance of accounting information. The coefficient size of EPS for the firms audited by big 4 audit firms is greater than the firms audited by Non-Big four firms. Similarly, the more explanatory power of the model for the firms audited by big 4 auditors, suggests that investors view accounting numbers of these firms more value relevant.

Table 4: Factors Affecting Value Relevance

Return Model: $RET_{jt} = \beta_0 + \beta_1 \frac{EPS_{jt}}{P_{jt-1}} + \beta_2 \frac{\Delta EPS_{jt}}{P_{jt-1}} + \varepsilon_{jt}$						Price Model: $MV_{jt} = \beta_0 + \beta_1 EPS_{jt} + \beta_2 BVPS_{jt} + \varepsilon_{jt}$					
Panel A: Big 4 vs. non-Big 4 firms											
	βo	EPS/Pt-1	ΔEPS/Pt-1	R^2	F-Value	βo	EPS	BVPS	R^2	F-Value	N
Big 4	25.64	27.33	4.35	0.124	99.20	-8.74	7.55	0.52	0.358	391.74	1404
Non-Big 4	22.10	7.16	4.69	0.462	59.21	12.70	0.80	0.28	0.299	522.79	2448
Panel B: Positive vs. Negative Earnings											
	βo	EPS/Pt-1	ΔEPS/Pt-1	R^2	F-Value	βo	EPS	BVPS	R^2	F-Value	N
Positive	20.81	34.38	-2.18	0.145	221.13	-11.89	6.78	0.28	0.316	603.25	2610
Negative	-3.14	-7.39	2.64	0.219	13.89	10.18	-0.22	0.20	0.105	73.05	1242
Panel C: Large vs. Small											
	βo	EPS/Pt-1	ΔEPS/Pt-1	R^2	F-Value	βo	EPS	BVPS	R^2	F-Value	N
Large	0.24	6.50	0.39	0.333	479.38	24.49	17.79	5.35	0.101	108.03	1926
Small	19.14	2.29	0.22	0.133	148.15	24.00	6.88	3.98	0.379	37.08	1926

Notes: RET is annual return, the dependent variable in return model. We calculated annual return inclusive of cash dividend as RET= Div + $(P_t - P_{t-1})/P_{t-1}$. EPS/PT-1 is the per share earnings which is deflated by per share opening price. ΔEPS represents change in per share earnings deflated by opening price per share, we calculated is as, $EPS_{jt} - EPS_{jt-1}$, MV is the market price. EPS represents per share earnings after tax and it is calculated by dividing total outstanding shares to net profit after tax EPS = Net profit after tax/Net profit after tax. BVPS is per share book value and it is calculated as, BVPS = Total Assets − (Liabilities + prefference shares)/ Number of shars outstandings. We conducted additional estimations after controlling for year and industry effect in pre and post sample regressions; however we observed no qualitative change in our results, so we stick to reports our main sample results. In this study we winsorized all continuous variables 1 % from top and bottom. ** and ***, represents significance levels at 0.05 and 0.01respectively.

The results of the price model confirm the findings of the annual return model, as both income statement and balance sheet variables (EPS and BVPS) are positively and significantly related to dependent variables. The size of earning's coefficient (EPS) and BVPS for big 4 auditors is far greater than that of non-big 4 auditors. No doubt that the results of firms audited by non-big 4 auditors are positive and significant at 1%. However the explanatory variables for these firms explain less variation in dependent variables of both models. These results are consistent with our expectations and provide evidence that Pakistani investors differentiate accounting information based on firms audited by Big 4 and Non-Big 4 auditors.

4.4.2 Positive vs. Negative Earnings

In our pooled sample, Out of total 3852 firm year observations 1242 observations reported losses during the sample period. So it is worth examining the effect of bad news (negative earnings) on value relevance. We split our total

pooled sample into observations reporting profits and observations reporting losses. Results are reported in table 4 panel B shows that deflated earnings level (EPS) for positive observations is positively associated with return on 1% level of significance and significant negative relationship between observations reporting losses and annual return.
The component of new information (ΔEPS) is surprisingly negative related to dependent variable for firms reporting profits and positive for firms reporting bad news (losses) and they are significant at 10% and 5% respectively. Katerina, 2006 and Filip, 2011 also reported similar results in the Czech Republic and Romania, respectively. They argued that "negative coefficient suggest assuming random walk in earnings, that the market will see whether the change is transitory and that the earnings will revert to normal level in the next accounting period". Compared to return model, regression estimates of price model clearly suggests less value relevance of accounting measures for firms reporting losses.
Hayn, (1995) investigated the issue for the first time and provided empirical findings as value relevance for losing firms is low as compared to firms reporting profits. Above mentioned findings are consistent with prior evidence that equity investors differentiate accounting numbers for looser and profitable firms (Ghayoumi et al. 2011 & Filip, 2011).

4.4.3 Effect of Firm Size

Prior literature investigating the effect of firm size reports that accounting numbers of small firms have more value relevance as compared to larger firms. A number of reasons are provided to explain this phenomenon, such as firms with big size are more frequently discussed in print and electronic media and investors have numerous sources of information about them. Whereas small firms are less attracted to media and come rarely under discussion which leaves published reports statements as the foremost important source of information about the financial health and performance of the firm (Ghayoumi et al. 2011 & Alali & Foote 2012).
We divided our sample based on the median of total assets as a cut off point for each year into subsamples consisting of big firms and small firms. The results presented in table 4 Panel C, are contrary to our expectations. Although all the accounting variables are positive and significant at 1% level, the accounting numbers for large firms have more association as compared to small firms, which shows that the investors in Pakistan perceive financial statements of big firms have more informational value as compared to small firms. Coefficient of determination, R2 is significantly larger in both models for big firms and vice versa. We find that out of 1242 observations reporting negative earnings, 801 are reported by small firms, which might be a possible reason behind these results**.**

5. Conclusion

Following the recommendations of Kothari and Zimmerman (1995), we used both price and return models to investigate whether the financial statements meet the criteria or relevance and reliability, by collecting data for all the non-financial companies listed in PSX for the sample period 2000 to 2011. We find that EPS and ΔEPS collectively explain 5.8% variation in annual return. Comparatively, price model shows that income statement (EPS) and balance sheet (BVPS) measures explain 30% variations in Market value. Overall findings of our study confirm that accounting information is value relevant to the investors in PSX.
We investigate the impact of IFRS adoption on the value relevance of accounting information in the second part of our study. Surprisingly, we find that new accounting standards have resulted in the declining relevance of accounting data. The explanatory power of annual return model and significance level in the post IFRS adoption decreases. Neither the coefficient signs nor the significance level of the variables changed in the price model in any subsample periods. However, we observe a substantial decline in coefficient's size of EPS and BVPS, and slight reduction in the explanatory power (R^2) in post IFRS adoption period, which supports the findings of Annual return model. Further, we control for year and industry effect to check robustness of our results but the results remained the same qualitatively. Finally, we explore the impact of auditor type, earnings sign and firm size on value relevance. Empirical results for both models show that the accounting information of firms audited by big four auditors is considered more value relevant because of the higher audit quality associated with them. We also find that firms reporting losses have less value relevance as compared to firms reporting profits. Finally, the findings of our study suggest that despite the fact that small firms are hardly discussed on the media and investors have less sources of information about them. Still, the accounting information for small firms is less value relevant as compared to big firms, which are frequently discussed on news and print media.
We believe that the in-depth analysis of new accounting standards is needed to explore the exact reason behind the declined value relevance after IFRS adoption. Additionally, it is also worth examining in future whether these results are driven by market inefficiency because emerging stock markets like PSX lack informational efficiency which is a prerequisite for testing relevance and reliability.

References

Alali, F. A., & Foote, P. S. (2012). The Value Relevance of International Financial Reporting Standards: Empirical Evidence in an Emerging Market. *The International Journal of Accounting, 47*, 85–108.

Amir, E., Harris, T. S., & Venuti, E. K. (1993). A Comparison of the Value-Relevance of U.S. Versus Non-U.S. GAAP Accounting MeasuresUsing Form 20-F Reconciliations. *Journal of Accounting Research, 31*, 230–264.

Ashraf, J., & Ghani, W. I. (2005). Accounting Development in Pakistan. *The International Journal of Accounting, 40*, 175–201.

Audi, M., Sulehri, F. A., Ali, A., & Al-Masri, R. (2022). An Event Based Analysis of Stock Return and Political Uncertainty in Pakistan: Revisited. *International Journal of Economics and Financial Issues*, *12*(5), 39-56.

Badshah, I., Mellemvik, F., & Timoshenko, K. (2013). Accounting From a religious Prespective: A Case of the Central Government Accounting in Islamic Republic of Pakistan. *Asian Economic and Financial Review, Vol. 3*(2), 243–258.

Ball, R. (2006) International Financial Reporting Standards (IFRS): pros and cons for Investors. *Accounting and Business Research*, 36, Special Issue, 5–27.

Ball, R., & Brown, P. (1968). An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research , 6*(2), 159–178.

Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The Relevance of the Value Relevance Literature for Financial Accounting Standard Setting Another View. *Journal of Accounting and Economics, 31*, 77–104.

Barth, M. E., Landsman, W., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research, 46*(3), 467–498.

Beaver, W. H. (1968). The Information Content of Annual Earnings Announcements. *Journal of Accounting Research, 6*, 67–92.

Beaver, W. H. (2002). Perspectives on Recent Capital Market Research. *The Accounting Review, 77*(2), 453–474.

Burgstahler, D. C., & Dichev, I. D. (1997). Earnings, Adaptation and Equity Value. *The Accounting Review, 72*(2), 187–215.

Chen, C. J., Chen, S., & Su, X. (2001). Is Accounting Information Value-Relevant in the Emerging Chinese Stock Market. *Journal of International Accounting, 10*, 1–22.

Collins, D. l., Maydew, E. L., & Weiss, I. S. (1997). Changes in the Value-Relevance of Earnings and Book Values Over the Past Forty Years. *Journal of Accounting and Economics, 24*, 39–67.

Daske , H., Hail, L., Luez, C., & Verdi, R. (2008). Mandatory IFRS reporting Around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research, 46*(5), 189–209.

Easton, P. D., & Harris, T. S. (1991). Earnings As an Explanatory Variable for Returns. *Journal of Accounting Research, 29*(1), 19–36.

Eccher, E., & Healy, P. (2003). The Role of International Accounting Standards in Transitional Economies: A Study of the People's Republic of China. *Available at SSRN 233598*.

Filip, A. (2010). IFRS and the Value Relevance of Earnings: Evidence. *International Journal of Accounting, Auditing and Performance Evaluations, 6*(2-3), 191–223.

Francis, J., & Schipper, K. (1999). Have Financial Statements Lost Their Relevance? *Journal of Accounting Research, 37*(2), 319–352.

Ghayoumi, A. F., Nayeri, D. M., Ansari, M., & Raeesi, T. (2011). Value-Relevance of Accounting Information: Evidence from Iranian Emerging Stock Exchange. *World Academy of Science, Engineering and Technology, 78*, 124–129.

Hayn, C. (1995). The Information Content of Losses. *Journal of Accounting and Economics, 20*(2), 125–153.

Hussain, F., & Qasim, M. A. (1997). The Pakistani Equity Markets in 50 Years: A Review. *The pakistan Development Review, 36*(4), 863–872.

Iqbal, J., & Brooks, R. (2007). A Test of CAPM on the Karachi Stock Exchange. *International Journal of Business, 12*(4), 1–16.

Karğın, S. (2013). The Impact of IFRS on the Value Relevance of Accounting Information: Evidence from Turkish Firms. *International Journal of Economics and Finance, 5*(4), 71–80.

Katerina, H. (2006). The Value Relevance of Financial Accounting Information in a Transition Economy: The Case of The Czech Republic. *European Accounting Review, 15*(3), 325–349.

Khalil, A., Safdar, A., & Amjad, A. (2018). Trade Revenue Implications Of Trade Liberalization In Pakistan. *Pakistan Journal of Applied Economics, 28*(1).

Khanagha, J. B. (2011). Value Relevance of Accounting Information in the United Arab Emirates. *International Journal of Economics and Financial Issues, 1*(2), 33–45.

Khuhro, R. A., Qureshi, Q. A., Humayon, A. A., Yasin, M. N., & Javed, F. (2015). Relevance, confusion, entertainment and skepticism towards advertising. *International Journal of Economics, Commerce and Management, 3*(3), 1–9.

Kothari, S. (2001). Capital Markets Research in Accounting. *Journal of Accounting and Economics, 31*, 105–231.

Kothari, S. P., & Zimmerman, J. L. (1995). Price and Return Models. *Journal of Accounting and Economics, 20*(2), 155–192.

Liu, J., & Liu, C. (2007). Value Relevance of Accounting Information in Different Stock Market Segments: The Case of Chinese A-, B-, and H-Shares. *Journal of International Accounting Research, 6*(2), 55–81.

Miller, M. H., & Modigliani, F. (1966). AssociationSome Estimates of the Cost of Capital to the Electric Utility Industry. *American Economic Association, 56*(3), 333–391.

Ohlson, J. A. (1995). Earnings, Book Values, and Dividends in Equity Valuation. *Contemporary Accounting Research, 11*(2), 661–687.

Ragab, A. A., & Omran, M. M. (2006). Accounting Information, Value Relevance, and Investors' Behavior in Egyptian Equity Market. *Review of Accounting and Finance, 5*(3), 279–297.

Rasheed, M. S., Bint Saeed, H., Yousaf, T., & Javed, F. (2018). Stock price synchronicity and voluntary disclosure in perspective of Pakistan. *European Online Journal of Natural and Social Sciences,7*(2), 265–274.

Saeed, K. A. (1993). A Global prespective of Accounting Education and Certification Process: A Chapter with Focus on Pakistan. *New York: Pergamon Press*.

Shahbaz, M., Ahmed, K., Nawaz, K., & Ali, A. (2019). Modelling the gender inequality in Pakistan: A macroeconomic perspective.

Soderstrom, N. S., & Sun, K. J. (2007). IFRS Adoption and Accounting Quality: A Review. *European Accounting Review*, *16*(4), 675–702.

Sulehri, F. A., & Ali, A. (2020). Impact of political uncertainty on pakistan stock exchange: An event study approach. *Journal of Advanced Studies in Finance*, *11*(2), 194-207.

Sulehri, F. A., Ahmed, M., & Ali, A. (2022). Proprietorship Structure and Firm Performance in the Context of Tunneling: An Empirical Analysis of Non-Financial Firms in Pakistan. *Journal of Policy Research*, *8*(4), 115-124.

Tsalavoutas, I., Andre, P., & Evans, L. (2009). Transation to IFRS and Value Relevance in Small but Developed Market: A Look at Greek Evidence. *The introduction of the European dimension in the Accounting Review, Strasbourg*, *1*, 1–56.