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The Impact of Comprehensive Income Volatility on Market Risk in Pakistan

Aniqa Azam[1*], Faryal Begum[1], Muhammad Mobeen Shafqat[2], Maimoona Gul Kaka Khel[3], Beenish Shabbir[4]

[1] Department of Management Sciences, Alhamd Islamic University, Islamabad, PAKISTAN.
[2] Departments of Business Administration, Government College Women University, Sialkot, PAKISTAN.
[3] Alhamd Islamic University, Islamabad, PAKISTAN.
[4] National University of Modern Languages (NUML), Islamabad, PAKISTAN.
**Corresponding Author (Email: faryal900@ gmail.com).*

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Abstract

The preparer of the financial statement treats that the incremental comprehensive income volatility confuses the operator of the financial information. This research examines the variability of comprehensive earnings and net profit relevant to marketplace risk for a sample of 62 non-financial companies listed in the Karachi stock exchange over the period of 2007 to 2017. The aim of this research showed comprehensive income volatility as compared to net income and related by means of market risk. The result of the model estimation shows that the hypothesis is confirmed due to the significant difference among volatility taking comprehensive income and net income and the incremental comprehensive income volatility as compared to net income is strongly connected to market risk. Except for financial enterprises, this analysis shows no evidence that total income (CI) is more powerfully linked with earnings than NI (Net income). The conclusions of this research paper have significant consequences for the Financial Accounting Standard Board's decision to present Comprehensive Income (CI) in a selected performance Statement.

Discipline: Financial Science.

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1 Introduction

In financial reporting, Comprehensive Income (CI) takes an argumentative article. The deficiency of probability and its volatility create challenges for using CI and net income before a

rapid performance quantity. For example, Schlueter 2010 wrote a remark letter toward the FASB on behalf of Emerson, a huge electronics firm, circumstances. "Deficiency of forecasting skill and specified this volatility changes in equity as income mentioning to non-owner which normally means earning is unclear at greatest and theoretically confusing. "Some respondents specified that volatility of CI would be from period to period and that volatility associated with market forces out the control management. Therefore, it would be unsuitable to climax that volatility in a report's performance. According to other respondents' comprehensive income was an additional degree of object act than it was of management activities and therefore incorrect to claim that it should not consider a performance degree because of management's incapability to switch the market forces and the outcome is being volatile from period to period (FASB, 1997). This study's evidence was not available in previous research. For a variety of reasons, it is unclear whether US proof of total income uncertainty will be useful in informing the IASB's considerations for numerous motives. IFRS agrees on the choice to enhance possessions, herbal, equipment, and investment assets. Previous research on comprehensive income volatility examines the rational value of accounting in the banking industry (e.g. Barth et al., 1995; Hodder et al., 2006). Most previous research studies comprehensive income volatility and emphases the Volatility of rational worth income in the monetary area (Hodder et al., 2006). Providing evidence from nonfinancial firms and improves to the literature (Yen & Brune, 2007).

To update the other comprehensive income reporting arguments is the main contribution of this study and by investigative risk significance of the Volatility of comprehensive income to the volatility of net income. The study of this paper evaluates research on the stockholder, diminishing the worth of comprehensive income, other comprehensive income, and components of comprehensive income to allow the researcher to deliver more suggestions between comprehensive income and net income whether the difference exists or not. The FASB discuss comprehensive income given as: "a quantity of all fluctuations in the fairness of a unit that affect other economic events of the period and recognized dealings other than dealing with owners in their ability. With a preference, the IASB has not yet been able to produce a solo comprehensive income statement. Both the IASB and the FASB submitted a conversation paper titled Basic Points of view on Financial Statement Performance.

Even with a preference, IASB has not been able to achieve a single statement of comprehensive income. In the submission of both the International Accounting Standard Board and Financial Accounting Standard Board Conversation paper named initial Opinions on Monetary Report Performance. According to this paper item on Comprehensive income with essential organization, results are volatile that confuse the financial users and indications the significant confusion of an entity's performance according to that respondent that disagrees with `a sole report performance. The perception of increased risk and volatility is related to comprehensive income of possible confusion. The lack of empirical evidence and respondent criticisms on the unpredictability of CI we report three questions of research.

- Does Comprehensive Income stay extra volatile as compared to Net Income?
- Does the increase in the NI and volatility of CI related to the market risk?
- Does the increase in the instability of CI takes benefit from share price?

Over the period 2007-2017, we take a sample of Pakistan's nonfinancial firms for the measurement of earning volatility. Asset uprising control other CI and the main sources of variability of CI. Regarding the 2nd question of research, the increase in the net income and volatility of comprehensive income is not associated with market volatility. The volatility of CI is not priced in the research question third, but the gradual volatility associated with asset valuation is priced. This paper shows the statistically and economically significant effect of CI volatility on capital structure.

2 Literature Review

The current output of IASB financial statement debate paper is named initial opinions on Financial Statement Performance. In this debate CI in a sole statement reported. In the years 2009 and 2010 the IASB and FASB established a combined plan to exchange IAS (Presentation of Financial Statements). In the year 2009, the IASB received 170 reactions and 139 to the exposer draft in 2011. Comprehensive income is calculated by adding NI (net Income) and other CI. For the reporting of CI, the pressure on FASB comes from interior and exterior inspirations (Johnson & Room, 1995). Much research has been done on the importance of CI value in global settings however, very rare research conducted in terms of the volatility of comprehensive income and relevant impacts (Khan et al., 2016). Barth et al., (1995) observe a sample of 137 US banks during 1971-1990. He discovered that fair value based earning is extra volatile as compared to historical cost based earning. Hodder et al. (2006) studied 202 US commercial Banks from 1996 to 2004 and inspect the risk importance of the standard deviation of three Performance measures that is NI, CI, and a complete built-in fair value income. Bamber et al. (2006) study a board unit of United State companies that altered CI reportage choice from 1998 to 2001 and do not directly report earnings volatility. Biddle & Choi, 2006) discover proof proposing that annual returns well describe by comprehensive income than both changes in retained earnings or net income positive common dividends using sample firms from 1994 to 1998. Dhaliwal (1999) found that annual returns have stronger relationships with comprehensive income than net income. Bamber (2006) does not straight discourse earning instability; somewhat they study a panel unit of US organizations change between 1998 and 2001; US companies improved their comprehensive income reporting. CI is greater than NI and is 29 percent and Nine Percent more Volatile than NI for the average firm. Increasing the diversity of business, increasing in difficulty business and increasing in the difficulty of worker collection named comprehensive income than on the similar period for the asset charge attitude for determining (Robinson et al., 1991). Where APB absent FASB continued at that point and the board define comprehensive income in a technique that was reliable with the complete method of income (Johnson & Room, 1995).To monitor the idea of FASB equity returns instability and use of conceptual background as the level of whether CI component volatilities are related for a

firm whole risk. CI component volatility and return volatility may be directly related to each other, and indirectly related by the evidence that determines the variability of equity return. Investigational research relaxes the FASB's view (FASB 1997) that reporting comprehensive income in a presentation report creates comprehensive income extra outstanding to financial report workers.

According to past research, this paper explains why guess CEOs trust that CI which is classically extra Volatile than NI in a presentation report will grow the seeming unpredictability of the performance of firms. Moreover, indication in Asiala et al. (1997) settles that financial experts respect the statement of variation in impartiality as one of the minimum valuable mechanisms of the yearly report. Khan investigates the volatility of total income relative to net income for a specimen of 2,500 United States non-financial companies. Those who discover that CI is more volatile than net earnings and is associated with market-based risk procedures. However, the increased volatility of CI relative to net income is unrelated to market risk and is not valued according to Hodder et al. (2006) and Khan & Bradbury (2014) to keep compatibility through previous research, This research familiarizes the research project and put on this toward non-financial firms in an IFRS setting.

Hypothesis

H1: Net Income is less volatile than Comprehensive Income.

H2: There is a strong association between market risk and income volatility.

H3: There is a significant relationship between Income volatility and Stock Price.

3 Methodologies

The early model includes completely non-financial companies listed on Pakistan Stock Exchange. The consequence of model selection criteria is documented as: Consequence of model selection conditions this Research Paper takes the non-financial companies (100 Index) listed in the Pakistan stock exchange for the period 2007-2017. The data will be downloaded from Yahoo finance.

3.1 Volatility of Income

$$MR_{i,t}= \alpha_0+\alpha_1(DE_{i,t}) +\alpha_2 (CF_{i,t}) +\alpha_3(IV_{i,t}) + €_{i,t} \quad (1)$$

IV is Income Volatility.

Market risk is the systematic risk which is the dependent variable and our independent variables are CI, AR and IV.

There are two economic risk measures. I Beta (ii) Stock return volatility (£SR). Beta is a systematic risk that can be predicted using a minimum square regression among a consistent market index and stock prices. From 2007 to 2017, the Standard deviation of raw returns was used to calculate total risk.

3.2 Association Between Market Risk and Income Volatility

$$MR_{i,t}=\alpha_0+\alpha_1(DE_{i,t})+\alpha_2(CF_{i,t})+\alpha_4\,(CI_{i,t})+€_{i,t} \quad (2)$$

From Equations one and two if income instability is connected to Market- Risk after monitoring the Accounting Risk variable then α_3 and α_4 should be positive and significant.

3.3 Association Between Stock Price and Income Volatility

According to Hodder et al. (2006) model income volatility decreases share prices because it is an element of risk and according to Ohlson (1995) it is the extension lead of the remaining income model.

$$P_{i,t}=£_0+£_1BV_{i,t}+£_2Ae_{i,t}+€_{i,t} \quad (3)$$

Here abnormal earnings as a proxy for expected future abnormal earnings and use current period earnings to calculate abnormal earnings at the beginning of the year Risk-Free Rate of return is less than the product. This calculation and the use of risk-free rate permit coefficient estimations to arrest the risk effect. According to (Hodder et al., 2006) the expected result of the coefficient of BV is equal to 1 and the expected result of the coefficient of AE is positive.

Market risk is the dependent variable. Here are two methods used for the measurement of market risk: beta and stock return volatility. Stock return measures total risk and Beta is the degree through which systematic risk is measured. To adjust the control of further bookkeeping variables on market risk, this research comprises debt to equity and operating cash flow. These financial indicators are predicted every year and are consistent for the same time period to measure earnings volatility. The accounting variables were chosen based on previous research that found a link between beta and accounting-based risk measures.

4 Results and Discussion

4.1 Descriptive Statistics

Descriptive statistics is responsible for the measurement of central tendencies like the number of observations, their mean, maximum value, minimum value, skewness, and standard deviation. Table 1 is presenting the descriptive statistics of the study variables.

Table 1: Descriptive Statistics for Research Variables

	MR	δNI	δCI	PRICE	BV	AE	CF	DET
Mean	0.4325	0.0155	0.0239	96.890	18.834	166.81	5.0587	-1.3804
Median	0.4744	0.0045	0.0090	61.780	11.270	54.088	5.1227	-1.3263
Maximum	0.9904	0.0923	0.0841	300.00	91.970	1143.0	5.5577	-1.0500
Minimum	0.0162	0.0000	0.0004	1.0000	1.0100	-51.037	4.4092	-2.1191
Std. Dev.	0.3056	0.0250	0.0279	97.523	22.660	290.24	0.3069	0.2733
Skewness	0.0296	2.0143	0.9385	0.9616	2.1328	2.4984	-0.2830	-0.8574
Kurtosis	1.8456	5.7995	2.2611	2.6149	6.7162	8.0741	2.2455	3.0159
Jarque-Bera	1.8369	33.092	5.5956	5.2904	43.971	69.735	1.2233	4.0443
Probability	0.3991	0.0000	0.0609	0.0709	0.0000	0.0000	0.0542	0.1323
Sum	14.274	0.5136	0.7904	3.1974	0.0000	5504.8	166.93	-45.554
Sum Sq. Dev.	2.9885	0.0200	0.0249	3.0434	1.6432	2.6958	3.0154	2.3913
Observations	62	62	62	62	62	62	62	62

Pahlavan and Dehghan (2016) used this technique. In this study, descriptive statistics are used for observing the certain structure of variables. This type of statistics simply describes the sample and its target to analyze the limitations of the research community or sample. The price per share is denoted by P. The Book Value of Equity per share is denoted by BV. The AE is used for Abnormal Earnings per share.

4.2 Correlation Matrix

It gives collinearity values to independent variables which try to reduce their statistical significance in regression analysis. Here Pearson correlation was useful in industry, firm, and country-level descriptive variables of leverage. If the issue of multi-collinearity is among explanatory variables, then the suitable measure will be the correlation matrix for the study.

Table: 2: Correlation Matrix for firm level determinants

Correlation Matrix for firm level determinants								
	MR	DE	NI	CI	BV	CF	AE	P
MR	1							
DE	-0.342*	1						
δNI	0.211*	-0.059**	1					
δCI	-0.354*	0.171*	-0.235*	1				
BV	-0.110*	-0.114*	-0.021***	0.018***	1			
CF	-0.283*	0.104*	-0.132*	-0.132*	0.001***	1		
AE	-0.041***	0.017***	0.024***	0.037***	0.047***	0.008***	1	
P	0.606	-0.252*	0.279*	-0.049***	-0.131*	-0.131*	-0.311*	1

In the above table results of data of non-financial firms (100 Index) listed in the Pakistan stock exchange the minimum and maximum values are reported. Some data are reported with negative correlation, and some show positive correlation within the limit. According to the direct above result, the maximum value of the variable is 0.606. This value is not bigger than 0.7 or 7%. In this logic, we can say that there is no problem exists in this model, and no need to run the variance inflation factor (VIF).

4.3 Ordinary Least Square Regression Analysis

This model is used to examine the connection among the study variables. This is the most popular tool of study in quantitative studies, where a separate variable is used to model at least on interval scales. According to Salahudin (2011), the ordinary pooled least squares model implies that the intercept and coefficient are fixed. This model does not account for the individual effect and the time effect which is the biggest disadvantage of this model (Shah and Khan, 2007).

Hill (2008) argues that pooled ordinary least square model reduces the error between estimated or expected and real logical points on the line. It is imagined that there is no significant result of firms and the effect of time (Shah and Kausar, 2012). There are two kinds of ordinary least square method regression for the analysis of data: one is simple least square regression and the second one is multivariate ordinary least square regression.

Following are the equations of ordinary least square regression in general.

$$MR=\alpha0+\alpha1DE+\alpha2CF+\alpha3\delta NI+C \quad (4)$$

$$MR=\alpha0+\alpha1DE+\alpha2CF+\alpha4\delta CI+C \quad (5)$$

$$MR=\alpha0+\alpha1DE+\alpha2CF+\alpha3\ \delta NI+\ \alpha5\delta CI\ -\ \delta NI+\ C \quad (6)$$

$$P=\alpha+\alpha_1\ BV+\alpha_2AE+C \quad (7)$$

$$P=\alpha_0+\alpha_1\ BV+\alpha_2AE+\alpha_3DE*AE+\alpha_4CF*AE+\alpha_5\delta NI*AE+C \quad (8)$$

$$P=\alpha_0+\alpha_1BV+\alpha_2AE+\alpha_3DE*AE+\alpha_4CF*AE+\alpha_6\delta CI*AE+C \quad (9)$$

$$P=\alpha_0+\alpha_1BV+\alpha_2AE+\alpha_3DE*AE+\alpha_4CF*AE+\alpha_5\delta NI*AE+\alpha_7\delta CI-\delta NI*AE+C \quad (10)$$

MR is Market Risk

DE is (Debt to Equity Ratio) a proxy for Default Risk.

CF is Cash Flow used as a Proxy for Liquidity Risk.

CI is a Comprehensive Income

C is Constant

NI is Net Income

BV Book Value

AE abnormal Earning

δ is the Standard Deviation

The firm price per share is denoted by P.

4.4 Research Questions

4.4.1 The volatility of comprehensive income and net income

Table 3 represents the results of the complete dataset for non-financial firms listed in the Karachi stock exchange.

Table 3: Descriptive statistics and comparative analysis of income volatility and comprehensive income

Variable	Mean	Std.Dev	Min	1st Quant	Median	3rd Quant	Max
δNI	0.0118	0.0211	0.0000	0.0019	0.0038	0.0083	0.0923
δCI	0.0248	0.0285	0.0004	0.0026	0.0094	0.0450	0.0954

Table 4: Descriptive statistics of S.D of CI S.D of NI (^{s}CI/^{s}NI)

Variable	Mean	Std.Dev	Min	1st Quant	Median	3rd Quant	Max
δCI/δNI	358.7	101.43	2.326	0.3301	3.028	11.808	16233

Descriptive statistics are shown in Table 3 the Net Income standard deviation is 0.0211 and the standard deviation of Comprehensive Income is 0.0285. The comprehensive income SD is higher than the net income Standard deviation.

To measure the comprehensive income volatility as compared to net income sees table 4. The S.D of CI to NI is 101.43. It shows that Comprehensive Income is 43% more unpredictable than

Net Income. The Median Ratio shows that CI is 2% more unpredictable than NI. There is no explanation that the volatility of CI is the same as NI.

Table 5: Regression result of equation 1

Variables	Coefficient	Std. Error	t-statistic	Significance level
C	2.572	0.768	3.346	0.0020
CF	-0.310	0.145	-2.127	0.0407
DE	-0.412	0.157	2.614	0.0132
δNI	1.261	1.763	0.715	0.0492
R square	0.268	F- statistics probability	0.0128	

The consequence of this regression analysis using the method of ordinary least square the dependent variable market risk in the above table indicates that the R square is 0.268 which means that model is properly explanatory. The coefficient of CF and DE is negative and significant which is less than 0.05. It means that there is an inverse relation through the market risk of liability to the owner in selected non-financial companies. The standard deviation of net income is also positive and significant. Pahlavan and Dehghan 2016 and Khan & Bradbury, M. E. (2014) used this technique. And this research paper's results support their studies.

Table 6: Regression result of equation 2

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	2.310	0.733	3.148	0.0035
DE	-0.301	0.132	-2.340	0.0291
CF	-0.310	0.166	1.813	0.0257
δCI	3.997	1.555	2.570	0.0150
R square	0.327	F-statistics probability	0.0049	

The result of this regression analysis using the ordinary least square method the dependent variable market risk in table 6 indicates that the coefficient of DE and CF is negative and significant which is less than 0.05 so the liability ratio to the owner on market risk is effective. So, it means that liability to owners has negative and inverse relation through MR in selected companies. The coefficient of CI is positive and significant. It means that comprehensive income CI is positively associated with market risk. Pahlavan and Dehghan 2016 and Khan & Bradbury, M. E. (2014) used this technique. This research paper's results support their studies.

Table 7: Regression result of the equation

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	2.751	0.744	3.695	0.0008
DE	-0.352	0.141	-2.486	0.0181
CF	-0.414	0.151	2.732	0.0100
δCI	2.241	1.767	1.268	0.0236
DIFF	0.532	0.273	1.949	0.0598
R-Square	0.344	F-statistics probability	0.0063	

With respect to equation (3) the amount of R square is 0.344 which indicates that the model is properly explanatory. The coefficients of DE and CF are negative and significant in the model which is unpredictable with opportunities but not difficult (Goh and Emanuel 1981). The coefficient

of NI is positive and significant which means that income volatility is positively associated with market risk. Pahlavan and Dehghan 2016 and Khan & Bradbury, M. E. (2014) used this technique. And this research paper's results support their studies.

4.4.2 Volatility of NI and CI is priced

According to Kothari and Zimmerman (1995) researchers should use empirical analysis as an additional model due to theoretical and econometric problems. The price variable describes the extra absolute implications.

We tend to accept the Hodder et al. (2006) model to test this equation which may be a simplified form of the remaining financial gain model (Ohlson, 1995). Equation (4) remains that-the standard model before presenting any Comprehensive Income instability measures.

$$P=\alpha_0+\alpha_1 BV+\alpha_2 AE+C \quad (4)$$

Where the price per share of a firm is P; book value is denoted by BV and abnormal earning denoted per share of a firm is denoted by AE. It is expected that the coefficient of BV is equal to 1 and the coefficient of AE is expected positive.

Table 8: Regression result of equation 4

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	98.63	5.179	19.04	0.0000
BV	0.610	0.178	3.427	0.007
AE	0.069	0.018	-3.81	0.002
R Square	0.283	F-Statistics probability		0.0006

According to Table 8, the R square is 0.283 which means that the model is properly explanatory and there is a significant relationship among dependent variable P with independent variables Book value BV and Abnormal earnings AE. The coefficient of BV is significant and positive. The coefficient of AE is also significant and positive indicating that market prices are abnormal earnings. This research paper support khan and Bradbury (2014) paper. They use this technique.

We relate abnormal earnings with income volatility for the purpose to check whether the capital market prices the income volatility.

Table 9: Regression result of equation 5

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	87.76	7.622	11.513	0.0000
BV	0.569	0.212	2.678	0.007
AE	-0.039	0.022	-1.770	0.057
DE*AE	-0.409	0.195	-2.099	0.036
CF*AE	-1.200	4.380	2.736	0.006
δNI*AE	-4.853	3.792	-1.279	0.020
R Square	0.349	F-Statistics	0.003	

In Table 9, the R square is 0.349. It means that this model is properly explanatory, and the coefficients of interaction terms DE and CF are negative and significant suggesting that the volatility of income capture risk that is priced in the capital market. Our result support khan and Bradbury (2014) paper.

Table 10: Regression result of equation 6

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	99.55	6.224	15.994	0.000
BV	0.814	0.303	2.684	0.007
AE	-0.069	0.037	-1.870	0.051
DE*AE	-0.490	0.223	-2.193	0.028
CF*AE	-1.590	5.490	-2.897	0.003
δNI*AE	1.766	0.738	-2.392	0.017
R Square	0.435	F Statistics	0.002	

In Table 10, the R square is 0.435. It means that the model is properly explanatory and the coefficient of the Volatility of increased CI is positive and significant. It shows that comprehensive income is positively priced. With abnormal earnings, we correlate the accountings-based risk DE and CF measures and forecast negative coefficients for signifying the market allocates lower multiple capitalizations to the abnormal incomes through greater Accounting risk of firms. Khan & Bradbury, M. E. (2014) used this technique. And their studies support this research paper's results.

To observe whether the increased instability of CI over NI is priced we use Table 11. The R square is 0.729. It means that the model is properly explanatory. The significant and negative coefficient of α_7 (δNI - δCI) *AE shows marginal CI over NI volatility is related to the risk that is priced through the market.

Table 11: Regression result of equation 7

Variables	Coefficient	Std. Error	t-statistics	Significance level
C	87.715	7.978	10.99	0.000
BV	0.709	0.326	2.176	0.030
AE	-0.079	0.041	-1.929	0.054
DE*AE	-0.146	0.264	0.553	0.057
CF*AE	-3.560	7.310	4.864	0.000
δNI*AE	-3.549	3.931	-0.902	0.036
(δNI-δCI)*AE	-4.853	3.931	-3.662	0.003
R Square	0.729	F Statistics	0.000	

The regression results show that there is an inverse relation through the market risk of liability to the owner in selected non-financial companies. The standard deviation of net income is also positive and significant. Pahlavan and Dehghan 2016 and Khan & Bradbury, M. E. (2014) used this technique. The coefficient of CI is positive and significant. It means that comprehensive income CI is positively associated with market risk. This research paper's results support their studies.

The coefficient of NI is positive and significant which means that income volatility is positively associated with market risk. Thus the results lead to the acceptance of hypothesis 1 and hypothesis 2 which states that Net Income is less volatile than Comprehensive Income and There is a strong association between market risk and income volatility. According to Table 8 R square is 0.283 which means that model is properly explanatory and there is a significant relationship between the dependent variable P with independent variables Book value BV and Abnormal earnings AE. The coefficient of BV is significant and positive. The coefficient of AE is also significant and positive indicating that market prices are abnormal earnings. This research paper support khan and Bradbury (2014). Hence these findings prove that in Hypothesis 3, there is a significant relationship between Income volatility and Stock Price.

5 Conclusion

The concern is that the extra volatility rising from brief substances is held in observations of augmented risk and derivative in marketed price. This Paper report these concerns by examining whether comprehensive income is more volatile than net income, whether the increased volatility of comprehensive income is related to market risk and whether the increased volatility of comprehensive income is priced. Most of the previous research associated with the volatility of comprehensive income measure the fair value of accounting in banking and financial sectors (Hodder et al 2006 and Barth et al 1995).

Evidence on this latter issue will have to wait until SFAS 130 disclosures are available for fiscal years beginning after 15 December 1997 and will entail a substantially different research design than the association study used in this study. According to this study, there is a significant and positive impact on regression trade due to a significant level of 0.05. Moreover, the steady comprehensive income volatility above net income is priced. The major findings of this study are given here. This paper shows that comprehensive income is extra volatile as compared to net income and strongly related to market risk. The increased volatility of comprehensive income and net income is priced. This study finds no proof with exception of financial firms that comprehensive income is more strongly associated with returns than net income.

Availability of Data and Material

Data can be made available by contacting the corresponding author.

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Aniqa Azam is a student (PhD Scholar) at the Department of Management Sciences, Alhamd Islamic University, Islamabad. She got her Master's degree in Finance from the University of Poonch Rawalakot AJK. Her research focuses on Environmental Management Accounting and Green Accounting

Faryal Begum is a Student (PhD Scholar) at the Department of Management Sciences, Alhamd Islamic University, Islamabad. She got her MS degree in Finance from Riphah International University, Islamabad. Her research focuses on Environmental Uncertainty.

Dr.Mobeen Shafaqat is an Assistant Professor at Government College Women University Sialkot (GCWUS), Pakistan. He has completed his PhD in Business Administration from Beijing Institute of Technology, Beijing, China. His research is related to Corporate Governance, FDI, and other

Maimoona Gul kaka khel is a HR Manager at Alhamd Islamic University, Islamabad. She secured Gold Medal in MPhil Management from NUML. Her research interests are Green Finance, Corporate Governance and E-Human resource management.

Beenish Shabbir is a PhD scholar at the National University of modern languages. She got her Master's degree in finance from Riphah International University Islamabad. Her researches are behavioral finance and Green finance.