Journal of Commerce & Accounting Research
8 (2) 2019, 9-19
http://publishingindia.com/jcar/

EARNINGS QUALITY AND FIRM'S MARKET RISK: AN EMPIRICAL STUDY IN INDIAN CONTEXT

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Abstract *Financial statements are one of the most important sources of information which aid stakeholders in taking various economic decisions. Accounting measures like earnings present in these statements assist in decision-making. However, this requires high quality of earnings. It has an impact on the firm's market risk which further influences investment decision of the investors as well as the cost of raising funds by the firms. The present study addresses this issue and attempts to investigate the impact of earnings quality (EAQ) on market risk (SMR) of companies listed on the S&P BSE 100 Index for the period 2013-14 to 2017-18. A panel data analysis revealed that EAQ has a significant negative impact on firm excess returns (RRf). However, EAQ is not significantly related to firm's SMR and hence EAQ doesn't interact with market excess returns (MTRf) for affecting the RRf. Among control variables, only firm size is found to have a significant and negative impact on RRf as well as SMR. This study contributes to the literature by exploring the EAQ-SMR relationship in Indian context since the empirical evidence on other economies cannot be applied to India.*

Keywords: *CAPM, Discretionary Accruals, Earnings Quality, Market Risk, India*

INTRODUCTION

Financial statements are one of the most important sources of information which aid stakeholders in taking various economic decisions. Accounting information given in these statements not only helps in taking capital allocation decisions but also aims at improving efficiency of the capital market (Perotti & Wagenhoffer, 2014). Accounting measures like earnings, a summary measure, facilitates achievement of these objectives (Dechow, 1994). However, this requires high quality of earnings. Earnings quality can be defined as the extent by which earnings map into cash flows (Bhattacharya, Desai & Venkataraman, 2012). It can also be defined through the degree of earnings persistence or sustainability over a period of time (Ma & Ma, 2017). Poor mapping and/or high volatility of earnings over a period of time leads to lower quality of earnings. It is a key component of financial reporting which help investors in taking investment decisions. Therefore, high-quality earnings should not only accurately reflect and indicate the current as well as future operating performance of the firm but also have the capability of annuitizing the intrinsic value of the firm (Dechow & Schrand, 2004; Dechow, Ge & Schrand, 2010).

A number of studies have examined the determinants as well as outcomes of high quality of earnings of the firms. Some have investigated the impact of variables like audit quality, public equity ownership, corporate diversification, corporate social responsibility, political connections and conservatism on earnings quality (e.g., Jenkins, Kane & Velury, 2006; Lin, Li & Yang, 2006; Chen, Lin & Lin, 2008; Givoly, Hayn & Katz, 2010; Kim, Park & Wier, 2012; Narayanaswami, 2013; Asri & Habbe, 2017; Masud, Anees & Ahmed, 2017) while others have examined the impact of earnings quality on various dimensions of firm's performance like firm value, excess returns, cost of equity and idiosyncratic return volatility (e.g., Penman & Zhang, 2002; Gaio & Raposo, 2011; Perotti & Wagenhoffer, 2014; Domingues, Cerqueira & Brandão, 2015; Carmo, Moreira & Miranda, 2016; Latif, Bhatti & Raheman, 2017; Ma & Ma, 2017). Prior theories and empirical studies have explained that there exists a link between information quality and cost of equity (e.g., Diamond & Verrecchia, 1991; Easley & O'Hara, 2004). Francis, Nanda and Olsson (2008) investigated the association between earnings quality, voluntary disclosure and cost of capital measured in terms of cost of equity and other proxies. It was found that voluntary disclosure reduces cost of capital but this effect vanishes completely when conditioning on earnings quality. Hsu and Yu (2015) found that earnings quality indirectly affects cost of equity through information risk generated by asymmetric information measured in terms of bid-ask spreads. Similar results were found in Hakim, Triki and Omri (2008) and Kim and Qi

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(2010). Yee (2006) and Lambert, Leuz and Verrecchia (2007) (hereafter, LL&V) developed models depicting association between earnings quality and market risk generated by asymmetric information.

Despite an increasing interest in the earnings quality-cost of equity relationship, the empirical evidence on market risk-earnings quality relationship is scant. The number of studies focusing exclusively on this issue are very less (e.g., Ashbaugh-Skaife et al., 2009; Ng, 2011; Bhattacharya, Desai & Venkataraman, 2012; Ma, 2017). Also earnings quality has declined over a period of time (Srivastava, 2014). Therefore, it will be beneficial to explore this relationship absolutely since quality of earnings influences investment decision of the investors as well as cost of raising funds by firms (Kamarudin & Ismail, 2014). Moreover, limited evidence has been found in Indian context. However, literature gives some indication that the high-quality earnings by reducing information asymmetry lower firm's systematic market risk. So, further work needs to be done to explore this relationship for adding to the knowledge domain.

The present study attempts to determine the impact of earnings quality (EAQ) on systematic market risk (SMR) of companies listed on S&P BSE 100 Index for the period of five years, i.e., from the financial year 2013-14 to 2017-18. It intends to contribute to the existing literature in two ways. Firstly, since defining and measuring EAQ is a major challenge faced by academicians and practitioners, the study gives an overview of definitions and measurement proxies of EAQ from different perspectives. Secondly, it explores EAQ-SMR relationship in Indian context since the empirical evidence on other economies cannot be applied to India. The results presented will hopefully provide beneficial insights to regulators, investors, corporations and researchers.

LITERATURE REVIEW AND HYPOTHESIS

LL&V gave analytical model which provides an explanation for the relationship between EAQ and SMR. The authors explained that earnings quality/precision (more broadly defined as information quality) has direct and indirect effects on cost of equity through market risk which are non-diversifiable in nature and the direct effect is more dominating than the indirect effect. The direct effect occurs when investors due to information asymmetry created by low quality information are unable to assess the realization of future cash flows of a firm. Therefore when the quality of earnings improve the covariance assessed by the investors between cash flows of the firm and the market decreases, thereby affecting the firm's market risk. The change in real decisions of a firm like production decisions and reduction in appropriation of cash flows by managers due to better quality of information generates indirect effect of earnings quality on market risk (Kim & Qi, 2010; Ma, 2017).

Earnings Quality Definition and Measurement

In the present scenario, EAQ has become an area of interest due to ever increasing demand of transparency by various stakeholders of an organization. The researchers have attempted to define earnings EAQ in a unanimous way; however, they haven't reached to a common definition (Kamarudin & Ismail, 2014). Therefore, it can be defined on the basis of two perspectives namely: economic-based perspective (EBP) and decision-usefulness perspective (DUP). According to EBP, the earnings are of higher quality when they are useful in taking various decisions. For e.g., the financial analysts will consider earnings as of high quality only when it will be able to reflect and indicate the current as well as future operating performance of the firm. In case of investors, EAQ will be higher when it is capable of annuitizing the intrinsic value of the firm (Dechow & Schrand, 2004). The definition under this perspective will vary depending upon the type of user of accounting information. In case of DUP, the definition of EAQ is based on its association with Hicksian earnings, i.e., true earnings which are not dependent on accounting recognition and implementation rules (Schipper & Vincent, 2003). In practical situations this definition is not operational due to non-observance of Hicksian earnings.

Measuring EAQ is another major challenge faced by academicians and practitioners. There are various proxies available in order to measure EAQ. The first way is by measuring earnings management. Earnings management refers to the process of manipulation of earnings by managers in order to achieve their objectives at the expense of the firm as a whole. Accrual accounting is used as a tool for managing earnings resulting into increased profits in the short run. Various models have been developed by researchers like DeAngelo (1986), Jones (1991), modified Jones (Dechow et al., 1995) etc. However modified Jones is found to be more superior model which is based on discretionary accruals. The second way of measuring EAQ is by assessing accruals quality, a method introduced by Dechow and Dichev (2002) in their seminal study. It is based on the relationship between working capital changes and cash flows over a period of time and poor mapping of accruals with realization of cash signifies low quality. The third measure is based on the degree of earnings persistence or sustainability over a period of time (e.g., Richardson, 2003; Ahmed, Billings & Morton, 2004; Richardson et al., 2005). This method measures EAQ by using time-series approach. Earnings with high volatility are considered as of poor quality (Ma & Ma, 2017).The fourth method is known as earnings predictability which is based on

the future cash flows predicting power of the earnings (e.g., Francis et al., 2004; Barragato & Markelevich, 2008). Better the predicting power of the earnings, higher is the quality. The fifth method is value relevance which measures EAQ by ability of earnings to capture and summarise equity value (e.g., Amir, Haris & Venuti, 1993; Houlthausen & Watts, 2000; Beisland, 2009). The significant association between earnings and stock prices depict high quality of earnings. The last and sixth method is known as timeliness which is defined as the time taken to reveal information in earnings (Beekes, Pope & Young, 2004). The earnings are considered as of high quality if its timely availability aids in evaluation and valuation purposes (e.g., Francis et al., 2004; Abdullah, 2006).

Earnings Quality and Market Risk

Prior literature generally suggests that high EAQ reduces firm's SMR and vice-versa. Barry and Brown (1985) developed an asset pricing equilibrium model under the conditions of differential information availability about the return parameters and found that securities with little information have higher SMR as compared to securities with large information. Similarly, Coles, Loewenstein and Suay (1995) found that securities have high market risk and beta under the conditions of asymmetric information in case of both single and multiple-security settings.

Another theoretical model is given by Diamond and Verrecchia (1991). According to it, earnings with low quality increases information asymmetry among investors and if they vary in their capacity of processing information related to earnings, then this will further exaggerate the situation of information asymmetry in the markets. It will lead to increased SMR in two ways. One way is that the firm value will become sensitive to the market news, thereby affecting stock prices of the firm and the second is that the investors will demand compensation in the form of higher risk premium. Easley and O'Hara (2004) suggested that huge variation in the amount of information available to public and private investors induces systematic risk because of which the investors will demand compensation by way of superior expected returns whereas Epstein and Schneider (2008) mentioned that uncertainty-averse investors react more sturdily to a bad news in case of poor EAQ thereby increasing firm's systematic risk. Yee (2006) explained that EAQ affects the equity premium and hence cost of capital only in the presence of fundamental risk by magnifying it. Also the undiversified constituent of EAQ, which is systematic in nature, plays a role in influencing the risk premium.

Empirical studies have also supported the theoretical studies. Ng (2011) investigated the impact of high-quality information on liquidity as well as market risk and found that it significantly reduces both types of risks along with the fall in overall cost of capital. Similarly Ashbaugh-Skaife et al. (2009) documented that lower information quality measured by feeble internal controls increases the degree of various risks faced by firms namely systematic and idiosyncratic after controlling the affect of other risks. Bhattacharya et al. (2012) examined the relationship between EAQ and SMR generated by information asymmetry measured in terms of bid-ask spread using path analysis. The study also supported the existence of negative association between variables. However it was found that the indirect path of relationship between EAQ and equity cost which involves mediation affect of information asymmetry (measured as beta) is important only in case of markets having less competition. Ma (2017) also reported that U.S. firms with higher EAQ have lower SMR.

There are few contradictory arguments as well. Ogneva, Subramanyam and Raghunandan (2007) investigated the impact of accounting quality measured in terms of feeble internal controls on cost of equity and found that the variables are not significantly and directly related to each other after controlling the affect of firm-specific variables. It suggests that high EAQ doesn't reduce SMR generated by information risk. LL&V also argued that EAQ influences beta factor of the firms but the direct as well as indirect impact of EAQ on SMR can go in opposite direction, i.e., improvement in quality can lead to unambiguous increase in risk, however, in case of specified conditions only. Therefore, on the basis of literature, it is hypothesized that:

H1: EAQ has a significant negative impact on SMR.

Overall, majority of studies have supported the argument that high EAQ decreases firm's SMR by eradicating information asymmetry. However, some have reported that presence of high EAQ is insignificantly related to SMR. In Indian context, scant evidence is found focusing exclusively on this issue. Hence, the present study addresses this research gap by examining EAQ-SMR relationship for companies listed on S&P BSE100 Index.

DATA & RESEARCH METHODOLOGY

Sample Selection and Period of the Study

The present study has been confined to a subset of companies that are included in the S&P BSE 100 Index as on 31st March, 2018. Firstly, all the banking and financial sector companies were excluded from the sample as the presentation of data in the financial statements of these companies are different from that of the non-financial companies. Secondly, all the public sector companies were removed for making the

sample uniform. Third, companies with different fiscal year, i.e., other than 31st March and financial year of more than twelve months during the study period were excluded from the sample. Finally, the companies that were not listed during the whole study period were removed. The selection criteria are shown in Table 1 which resulted into final sample size of 60 companies that accounts for 60 percent of the S&P BSE 100 Index. The industry groups and the number of sample companies included in these groups are tabulated in Annexure 1. The period of the study is five years, i.e., from the financial year 2013-14 to 2017-18.[1,2]

Table 1: Sample Selection Criteria

Selection criteria	Companies
Initial sample companies from S&P BSE100 index as on 31st March, 2018	100
Less: Banking and financial sector companies	21
Public sector companies	13
Companies with different fiscal year, i.e., other than 31st March	4
Companies with financial year of more than 12 months	1
Companies not listed during whole study period	1
Final sample	60

Source: Author's own compilation

The sample size of 60 companies for four years study period resulted into 240 firm-year observations which were used for the measurement of EAQ. Out of these, four observations were deleted because of outliers. This resulted into the sample of 236 observations for measuring the impact of EAQ on SMR, out of which six observations were removed again due to outliers. The final sample came out to be 230 firm-year observations.

Data Sources

The study is based on secondary sources of data. The data for stock price of the firms and financial reporting information has been obtained from the database PROWESS maintained by the Centre for Monitoring the Indian Economy (CMIE). The 91-days T-Bill rate and stock prices of the S&P BSE500 Index has been taken from the website of the RBI and BSE respectively.

Variable Description

To investigate the EAQ-SMR relationship, the following variables are used:

Dependent Variable

Firm's excess return (RRf) is a dependent variable which is measured as firm stock return minus the risk-free return in year t+1. 91-days T-Bill rate is taken as proxy for risk-free rate. Asset pricing theories favour usage of expected returns which are ex-ante in nature when examining relationship between the returns and SMR. However, these returns are difficult to observe directly and hence realized returns are used in the present study (e.g., Kim & Qi, 2010; Ma, 2017). Also the realized returns are calculated for the year t+1 as accounting information of the companies is not available immediately at the end of financial year for aiding investors in decision making rather it takes time to release in the form of annual reports (Ma, 2017)[3]. Due to this financial results will take time to take effect and outcome of events post financial year can also affect the relationship between accounting numbers and stock returns (Rani, 2011). Further, the returns are calculated using the following formula:

Returns = (Closing price - Opening price) / Opening price (1)

Independent Variables

(a) Earnings Quality (EAQ)

For measuring EAQ, various proxies are available. However, modified Jones model is found to be more superior and hence used in the present study (Dechow et al., 1995). Also it is popularly used by researchers (e.g., Francis, Nanda and Olsson, 2008; Bhattacharya et al., 2012; Chen, Huang & Jha, 2012; Perotti & Wagenhoffer, 2014; Domingues, Cerqueira & Brandão, 2015; Hsu & Yu, 2015; Ma, 2017). First, the model as shown in Equation 2 is regressed using panel data analysis.

[1] The study requires data for financial reporting variables from the financial year 2013-14 to 2016-17 and stock prices related data for the year t+1, i.e., from the financial year 2014-15 to 2017-18. Therefore, firms included in the S&P BSE 100 Index as on 31st March, 2018 needs to be listed on the BSE during the whole study period of five years, i.e., from 2013-14 to 2017-18.

[2] BSE 100 Index comprises of top 100 companies based on full market capitalisation from the eligible universe listed on Bombay Stock Exchange in India.

[3] If data for measuring EAQ is taken for the year t, say 2016-17 then the corresponding data for returns will be taken for the year t+1, i.e., year 2017-18. The same will be done for other financial years.

$TACS_{ft} / AVGTA_{ft} = a + b_1. 1/AVGTA_{ft} + b_2. (\blacktriangle RV_{ft} - \blacktriangle RECV_{ft}) / AVGTA_{ft} + b_3. GPEQ_{ft}/ AVGTA_{ft} + e_{ft}$ (2)

Where,

$TACS_{ft}$ = Total accruals for firm f in year t (net income before extra-ordinary items minus cash flows from operations);

$\blacktriangle RV_{ft}$ = Change in revenue for firm f in year t;

$\blacktriangle RECV_{ft}$ =Change in receivables for firm f in year t;

$AVGTA_{ft}$ = Average total assets for firm f in year t;

$GPEQ_{ft}$ = Gross property, plant and equipment for firm f in year t.

Then the absolute values of discretionary accruals (DIAC) are calculated by using Equation 3. Higher absolute values of DIAC represent lower EAQ since the magnitude of DIAC is considered and not the direction (e.g., Francis et al., 2005; Rajgopal & Venkatachalam, 2008; Francis, Nanda & Olsson, 2008; Bhattacharya et al., 2012; Kim, Park & Wier, 2012; Ma & Ma, 2016; Ma, 2017). The values of coefficients a, b_1, b_2 and b_3 in Equation 3 are taken from the regression results of Equation 2.

$DIAC_{ft} = TACS_{ft}/AVGTA_{ft} - [a + b_1. 1/AVGTA_{ft} + b_2. (\blacktriangle RV_{ft} - \blacktriangle RECV_{ft})/AVGTA_{ft} + b_3. GPEQ_{ft} / AVGTA_{ft}]$ (3)

(b) Market factor (MTRf)

Market factor (MTRf) is measured as yearly market excess return, i.e., yearly returns of S&P BSE500 Index minus risk-free return in year t+1. In this case also realized returns, i.e., returns for the year t+1 are calculated as done for firm's excess returns.

Control Variables (CVs)

In order to isolate the impact of EAQ on SMR, firm-specific variables have been controlled. On the basis of literature, four CVs are identified which have been used largely in number of studies (e.g., Ashbaugh-Skaife et al., 2009; Gaio & Raposo,2011; Bhattacharya, Desai & Venkataraman, 2012; Chen, Huang & Jha, 2012; Kim, Park & Wier, 2012; Perotti & Wagenhoffer, 2014; Domingues, Cerqueira & Brandão, 2015; Carmo, Moreira & Miranda, 2016; Latif, Bhatti & Raheman, 2017; Ma, 2017). These are:

a) Current Ratio (CR) - Current assets divided by current liabilities.
b) Leverage (LEVG) - Total liabilities divided by total assets.
c) Tobin's Q (TOQ) – Sum of market value of equity and book value of liabilities divided by book value of total assets.
d) Firm size (FSZE) - Natural logarithm of the firm's market value.

The description of the variables is summarized in Table 2.

Table 2: Description of Variables

Variables	Symbol	Definition
A. Independent Variables		
1. Earnings quality	EAQ	Absolute values of discretionary accruals based on modified Jones model.
2. Market factor	MTRf	Yearly market returns minus risk-free return.
B. Dependent Variable		
1. Firm's excess returns	RRf	Yearly firm stock returns minus the risk-free return.
C. Control Variables		
1. Current ratio	CR	Current assets divided by current liabilities.
2. Leverage	LEVG	Total liabilities divided by total assets.
3. Tobin's Q	TOQ	Sum of market value of equity plus book value of liabilities divided by book value of total assets.
4. Firm size	FSZE	Natural logarithm of the firm's market value.

Source: Drawn from literature

Regression Model

Capital asset pricing model (CAPM) has been used to study the impact of EAQ on firm's SMR in which EAQ and CVs are added as independent variables as shown in Equation 4. It is adapted from the model used by Ma (2017).

$RRf = a + b_1\ MTRf + b_2\ EAQ + b_n\ (CVs) + b_7\ MTRf\_EAQ + b_n\ MTRf\_(CVs)$ (4)

Where,

RRf = Firm's excess return

MTRf = Market excess return

EAQ = Earnings quality measured as DIAC

CVs= Control variables

MTRf is interacted with all the control variables and independent variable EAQ in order to get insights about their interaction effects. The coefficient (b_7) on interaction variable MTRf_EAQ in Equation 4 shows the impact of EAQ on SMR whereas the coefficient (b_2) on EAQ shows the direct effects of EAQ on stock returns of the firm (RRf).

Data Analysis

Panel data analysis has been done to measure DAIC as a proxy of EAQ and studying the impact of EAQ on SMR. The regression results for the computation of DIAC are shown in Annexure 2. Tools like descriptive statistics and correlation analysis are also used for getting additional insights about the data. To choose between OLS pooled regression and fixed-effect panel model, the Redundant Fixed Effects Tests-Likelihood Ratio was applied and p-value (0.000) of the test favoured the use of panel regression in both the cases. Hausman test was employed to choose between fixed and random-effect models and in both the cases, p-value (0.000) supported the usage of fixed-effects model. The regression assumptions were tested using correlation analysis between independent variables for multicollinearity ($r<0.7$), Jarque-Bera test for normality of residuals ($p>0.05$), Durbin-Watson test for autocorrelation in which the value of test should be close to 2 and White test for heteroskedasticity ($p>0.05$. All the assumptions were satisfied except for the heteroskedasticity ($p<0.05$) for which White cross-section method was employed to control its effects in both the cases.

In the present study, software packages, EViews (version 10) and SPSS (version 20) have been used for the analysis of the data.

Descriptive Statistics

The results of univariate analysis done for the focal variables through descriptive statistics are shown in Table 3 for the whole sample. It consists of minimum and maximum values, mean and standard deviation. It highlights that the yearly mean excess returns earned by investors on an average sample company is 13.8 percent whereas the minimum RRf are negative (-59.9 percent) and the maximum RRf earned by them are 202.9 percent. Similarly minimum MTRf are negative (-0.151) and the average excess returns earned on market index (0.073) are much lower as compared to average value of firm's RRf. The standard deviation is also very low in case of MTRf as compared to RRf showing that it has less variation as compared to RRf. EAQ shows the quality of the earnings the sample companies have in the form of absolute values of DIAC. The mean value of DIAC of firms is 0.050 and the standard deviation of 0.040 shows that the difference in the magnitude of DIAC is not very high. Therefore, variation in the EAQ is less. The mean current ratio of the firms is 1.757 which means an average company has current assets 1.757 times of the current liabilities. It is below the thumb rule of ratio which is 2:1. However maximum CR is 10.466 times and the standard deviation (1.167) underlines that there is high divergence between the sample companies in terms of proportion of current assets to be held to cover the current liabilities of the firm. The minimum value (0.333) shows that some firms don't possess enough current assets to meet its short term obligations. The LEVG of the companies vary from 0.095 to 0.762. The average LEVG is 42.3 percent. The variation in the control variable TOQ is very high as shown by its standard deviation (3.017). The average size of the firm is Rs. 715,724.62 million measured through its market value. The standard deviation (870,543.012) signifies huge difference in the size of the sample firms. The log values of FSZE have reduced variation to a great extent as depicted by its value of standard deviation (0.4092).

Table 3: Sample Description

Variables	No. of observations	Minimum	Maximum	Mean	Standard Deviation
RRf (%)	230	-0.599	2.029	0.138	0.415
MTRf (%)	230	-0.151	0.245	0.073	0.168
EAQ (DIAC)	230	.0003	0.233	0.050	0.040
CR (times)	230	0.333	10.466	1.757	1.167
LEVG (%)	230	0.095	0.762	0.423	0.148
TOQ	230	0.675	19.712	4.249	3.017
FSZE(Rs.)	230	46,273.48	4,988,978.1	715,724.62	870,543.01
FSZE(log)	230	4.665332	6.698012	5.646	0.4092

Source: Author's calculation

Correlation Analysis

To study the association between variables Pearson correlation is applied. This technique has provided insights into direction and extent of relationship between selected variables. It is also performed to check the problem of multicollinearity among independent variables. As shown in Table 4 (Column 1), the dependent variable RRf is significantly related to all independent and control variables except CR and TOQ at different levels of significance. RRf has positive relationship with MTRf, LEVG and EAQ whereas it is negatively linked to FSZE. However, the value

of correlation coefficients is not very high (r<0.7) indicating lower magnitude of relationship between them. Columns 2 to 7 exhibit the correlation coefficients for the independent and control variables. Since none of the coefficients have value greater than 0.7 at different levels of significance therefore, it doesn't pose any multicollinearity problem.

Table 4: Correlation Matrix

Variables	(1) RRf	(2) MTRf	(3) CR	(4) LEVG	(5) TOQ	(6) FSZE	(7) EAQ
(1) RRf	1						
(2) MTRf	0.481*	1					
(3) CR	-0.064	-0.024	1				
(4) LEVG	0.117***	0.019	-0.662*	1			
(5) TOQ	-0.045	-0.060	0.135**	-.102	1		
(6) FSZE	-0.388*	-0.122***	0.080	-.190*	.195*	1	
(7) EAQ	0.161**	0.068	-0.015	.122***	.145**	-.274*	1

Source: Author's calculation

Note: *, ** and *** indicate significance at 1%, 5% and 10% levels respectively.

RESULTS AND DISCUSSION

Table 5 highlights the regression results for Equation 4 which measures the impact of EAQ on firm's SMR for the entire sample companies with RRf as dependent variable, MTRf and DIAC-a proxy for EAQ as independent variables, CVs (CR, FSZE, LEVG and TOQ) for controlling the effect of company-specific variables and interaction variables to study the interaction effect. The adjusted R^2 = 0.7634 which means 76.34 percent variation in RRf is explained by EAQ and other independent variables and hence the model fits well. Also the regression equation is significant at 1 percent level with F-statistic being 11.554. EAQ has significant negative coefficient (b= -0.9091; p<0.05) which means higher EAQ reduces RRf of the firm. Among control variables, only FSZE is found to have significant impact on RRf (b= -2.2101; p<0.01) and that too with negative coefficient. It highlights the direct and negative influence of the size on returns of the firm. No other control variable (CR, LEVG and TOQ) is found to have significant impact on RRf. Independent variable MTRf has positive impact on RRf but it is not significant at mentioned levels of significance (b = 2.0529) indicating absence of significant association between market as well as firm returns. The coefficient of interaction variable MTRF_EAQ is positive but insignificant depicting that EAQ doesn't affects firm's SMR and hence EAQ doesn't interacts with MTRf (market risk factor) for affecting the stock returns (RRf). Among other interaction variables, only MTRF_FSZE (b= -0.3969; p<0.10) has significant and negative coefficient which shows that the firms with large size have lower SMR and hence FSZE interacts with MTRf for affecting RRf.

Table 5: Earnings Quality and Market Risk

Results of Fixed-Effect Panel Regression		
Equation 4: RRf = a + b_1 MTRf + b_2 EAQ + b_n (CVs) + b_7 MTRf _EAQ + b_n MTRf (CVs)		
	Coefficient	**t-statistic**
Constant	12.8298*	10.7367
MTRf	2.0529	1.1140
EAQ	-0.9091**	-2.1232
CR	-0.0203	-1.5913
FSZE	-2.2101*	-10.2668
LEVG	-0.2197	-1.4110
TOQ	-0.0193	-1.2455
MTRF_EAQ	0.4650	0.5690
MTRF_CR	0.0596	0.3023
MTRF_FSZE	-0.3969**	-2.4117
MTRF_LEVG	1.3426	0.9925
MTRF_TOQ	-0.0009	-0.0447
Adjusted R^2	0.7634	
F-statistic	11.554*	
No. of observations	230	

Source: Author's calculation

Notes: (1) *, ** and *** indicate significance at 1%, 5% and 10% levels respectively.

(2) White cross-section test was used to control for heteroskedasticity.

Overall the findings suggest that the EAQ has significant and direct impact on RRf. It negatively influences returns,

i.e., higher EAQ reduces a firm's yearly excess returns and vice-versa. It is similar to as evidenced by Ma (2017) and Shalaei and Hashemi (2017). However, EAQ doesn't affect SMR significantly since the regression coefficient depicting association between RRf and MTRF_EAQ is positive but insignificant. In light of this H1 is rejected. This is possible in multiple-security settings in which the affect of EAQ on SMR can be diversified away especially in large economies (Ma, 2017). Also in case of capital markets with high competition, indirect path of relationship between EAQ and equity cost which involves mediation affect of information asymmetry (measured as beta) is not dominant (Bhattacharya et al., 2012). It is similar to as evidenced by Ogneva, Subramanyam and Raghunandan (2007). These results signal only the presence of direct impact of EAQ on RRf. Among control variables, only FSZE has significant (and negative) coefficient which shows that the firms with high market value have reduced excess returns as evidenced by Farhan and Sharif (2015). The significant negative coefficient of MTRF_FSZE implies that larger firms are less exposed to SMR. This can be possible due to availability of huge amount of funds with large firms which they can spend for greater dissemination of information and hence reduced information asymmetry among investors. These findings present both direct and interaction effect of FSZE through MTRf on RRf as evidenced by Ma (2017).

CONCLUSION

Financial statements are one of the most important sources of information which aid stakeholders in taking various economic decisions. Accounting measures like earnings present in these statements assist in decision-making. However, this requires high quality of earnings. It has impact on firm's market risk which further influences investment decision of the investors as well as cost of raising funds by the firms. The present study addresses this issue and attempts to investigate the impact of EAQ on SMR of companies listed on S&P BSE 100 Index for the period 2013-14 to 2017-18.

The study provides insights about EAQ-SMR relationship in India. First it was found that EAQ has significant negative and direct impact on RRf, i.e., higher EAQ reduces firm's yearly excess returns and vice-versa. Secondly, in case of EAQ-SMR relationship, it was found that EAQ is not significantly related to firm's SMR and hence EAQ doesn't interact with market excess returns for affecting the RRf. These results doesn't support the analytical model given by LL&V which states that information quality has direct and indirect effects on cost of equity through market risk which are non-diversifiable in nature. Finally, among control variables only firm size is found to have both direct as well as interaction affect through market factor on RRf signifying that larger firms earn less stock excess returns and are less exposed to SMR respectively.

The study has important implications for regulators, corporations and researchers. It suggests that the regulations should aim at providing better quality accounting information to investors which will aid in decision making. Also the corporations can diminish uncertainty by providing high quality information which will reduce the need of high risk premium to be paid to investors. This will further influence the cost of capital of the firm specifically cost of equity source of capital. However, there are some limitations of the study. First is the usage of yearly stock returns of the firms as well as market index. The usage of daily returns is found to have better results. Second, all the factors affecting EAQ-SMR relationship are not studied. There may be other firm specific factors which are out of the scope of this study. Also only accounting-based method is used for measuring EAQ. There are various proxies available for measuring EAQ from market perspective as well. Instead of these limitations, the study is relevant since it provides empirical evidence in Indian context.

The study can be extended further by examining EAQ-SMR relationship using three and four factor model. A combination of EAQ measures can also be used. A cross industry comparison can be done to formulate industry specific policies. Lastly, a mix of qualitative and quantitative techniques can be used to further explore this complex relationship moderated by several factors. These extensions will reveal a lot of information about this issue.

ANNEXURE 1: List of Industry Groups and Number of Sample Companies Included in the Group

S.No.	Industry Group	No. of Sample Companies
1.	2/3 Wheelers	4
2.	Agrochemicals	1
3.	Aluminium	1
4.	Auto Parts & Equipment	3
5.	Broadcasting & Cable TV	1
6.	Cars & Utility Vehicles	2
7.	Cement & Cement Products	3
8.	Cigarettes,Tobacco Products	1
9.	Commercial Vehicles	2
10.	Commodity Chemicals	1
11.	Construction & Engineering	1
12.	Electric Utilities	1
13.	Furniture,Furnishing,Paints	1
14.	Healthcare Facilities	1

15.	Industrial Machinery	1
16.	Integrated Oil & Gas	1
17.	Iron & Steel/Interm.Products	2
18.	IT Consulting & Software	5
19.	Marine Port & Services	1
20.	Oil Marketing & Distribution	1
21.	Other Apparels & Accessories	1
22.	Other Elect.Equip./ Prod.	1
23.	Other Industrial Products	1
24.	Other Telecom Services	1
25.	Packaged Foods	1
26.	Personal Products	5
27.	Pharmaceuticals	9
28.	Realty	1
29.	Specialty Chemicals	1
30.	Specialty Retail	1
31.	Tea & Coffee	1
32.	Telecom Services	2
33.	Zinc	1
	Total	60

Source: Author's own compilation

ANNEXURE 2: Calculation of Discretionary Accruals

Results of Fixed-Effect Panel Regression		
Equation 2: $TACS_{ft}/AVGTA_{ft} = a+b_1\ 1/AVGTA_{ft} + b_2\ (\blacktriangle RV_{ft} - \blacktriangle RECV_{ft})/AVGTA_{ft} + b_3\ GPEQ_{ft}/\ AVGTA_{ft} + e_{ft}$		
	Coefficient	**t-statistic**
Constant	-0.0778*	-11.560
$1/\ AVGTA_{ft}$	925.775*	4.054
$(\blacktriangle RV_{ft} - \blacktriangle RECV_{ft})\ /\ AVGTA_{ft}$	0.020	0.779
$GPEQ_{ft}\ /\ AVGTA_{ft}$	0.034***	1.887
Adjusted R^2	0.4895	
F-statistic	4.635*	
No. of observations	236	

Source: Author's calculation

Notes: (1) *, ** and *** indicate significance at 1%, 5% and 10% levels respectively.

(2) White cross-section test was used to control for heteroskedasticity.

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