

Smoothness, Earnings Surprise and Stock Price Informativeness. Evidence from Indian Stock Market

Gregory D. LYIMO

*Birla Institute of Management Technology, Plot No. 5, Knowledge Park, Greater Noida
(NCR) Uttar Pradesh - 201 306*

*The Institute of Finance Management (IFM) Shaaban Robert Street, P.O.BOX 3918, Dar es
salaam, Tanzania, E-mail: gregorylyimo2002@yahoo.co.uk*

Abstract *We examine the relationship between stock price synchronicity and earnings quality. We specifically used earning surprise and smoothness as proxy of earnings quality. Data were collected from companies listed in Bombay stock exchange in BSE 500. Our sample period ranges from 2006 to 2012. We employed panel data regression model using pooled OLS with standard error robust. We find that there is significant negative relationship between earnings surprise and stock price synchronicity. This finding is indicates that earnings surprise improves stock price informativeness. Finally, we find that there is no significance relationship between smoothness and stock price synchronicity. Therefore, smoothness of earnings does not influence stock price informativeness. The present study adds to new insight of the relationship between stock price informativeness and earnings quality proxies from emerging market particular India.*

Key words Earnings quality, earnings surprise, stock price synchronicity, stock price informativeness

DOI: 10.6007/IJARAFMS/v4-i2/936

URL: <http://dx.doi.org/10.6007/IJARAFMS/v4-i2/936>

1. Introduction

During recent years, the importance of improving informativeness of stock price so as to improve resources allocation have emerged issues of concern to researchers and other market participants (Durnev *et al.*, 2004; Piotroski and Roulstone 2004; Jing 2007; and Johnston 2009). Market participants such as analyst are much concerning how best to allocate resources so as to maximize portfolio of their investors. To maximize their portfolio analyst are much interested on stock price informativeness so as differentiate poor and good stock for buying for their portfolio. On the other hand, researchers are interested on studying factors that influence stock price informativeness so as to extend new insight to regulators, investors and analysts.

Stock price informativeness indicates the amount of firm specific information impounded into share price (Cheung *et al.*, 2005; Ferreira *et al.*, 2011; Jing, 2011; Watanabe & Trulasko 2012; Cheng *et al.*, 2013). More informative stock represents stock that impounds more firm specific information and less informative stock indicates stocks impounds less firm specific information. Stock price synchronicity is inverse measure of stock price informativeness which been used extensive in capital market research (Piotroski and Roulstone 2004; Jing 2007; Johnston 2009). Lower stock price synchronicity indicates more informative stocks and higher stock price synchronicity indicates less informative. Therefore in this paper these terms will be used interchangeably to mean inverse of each other.

In recent years we have seen the work of Morck *et al.* (2000), Wurgler (2000) and Durnev *et al.* (2004) who investigated stock price synchronicity across countries have been extended to country-wise studies to investigate how stock price synchronicity behave country wise and factors that influence stock price synchronicity (Jing 2007; Johnston 2009; Gul *et al.*, 2010; Cheng *et al.*, 2013). For example Jing (2007) investigated the association between synchronicity and earnings quality indicators (persistence, predictability, smoothness and others) in USA. Similarly, Gul *et al.* (2010) conducted a country wise study to examine the

association between stock price informativeness and ownership in China. Likewise, Johnston (2009) investigated the relationship between stock price synchronicity and earnings quality measured by accrual quality in USA.

Empirically, prior studies documents that improved earnings quality proxied by smoothness, persistence, earnings surprise, value relevance and others is associated with more informative stock prices (Jing 2007, Johnston 2009). However, this relationship may change if reported earnings are subject to constrain that hinder reported earnings to reflect the true income of companies (Dechow *et al.*, 2010).

Recently, India has experienced tremendous increase in foreign direct investment in capital markets and increase in domestic investment capital markets (Economic survey 2010-11, 11-12). Capital inflows from foreign countries in terms of investment in financial market have been important to India in stimulating economic development. To maintain the level of economic growth and capitalize on both the foreign and domestic investment in capital markets the need to improve stock price informativeness is inevitable. Therefore this study is interested to investigate the relationship between stock price informativeness as measured by stock price synchronicity and two earnings quality proxies' smoothness and earnings surprise indicator in the context of India capital market.

This study is important for three reasons. First, it is the first to be conducted in India to investigate the relationship between stock price informativeness and earnings quality proxies' smoothness and earnings surprise. Prior studies have been conducted in developed economies (Jing 2007, Johnston 2009). Second, currently the importance of improving stock price informativeness is inevitable in India, for sustainable investment in capital markets. Third, relationship between stock price informativeness and earnings qualities proxies have resulted to mixed findings (Jing 2007, Johnston 2009, Rajgopal & Venkatachalam 2011). Therefore this study gives new insight of the relationship between stock price informativeness and earnings quality proxies from Indian capital market.

This part has been divided into five sections. Section two deals with literature review. Section three discusses the design. Section four discusses the empirical findings. Finally, section five draws the conclusion of this paper.

2. Literature Review

Studies that study association between stock price informativeness and earnings proxies' smoothness and earnings surprise are limited in accounting and finance research. Therefore, literature includes other studies close to this area.

Using similar research methodology data from different 40 countries however at different time period (1995, 1990-2002), Morck *et al.* (2000) and Skeife *et al.* (2006) arrive at different conclusion. On the one hand, Morck *et al.* (2000) findings show that stock returns are more synchronous in emerging countries than in developed countries. On the other hand, Skeife, *et al.* (2006) findings reveal that stocks are more synchronous in developed market than in emerging market. This findings show no relationship between synchronicity and country development level.

In contrast with Skeife *et al.* (2006) findings, Khattak *et al.* (2010) replicated the study conducted by Morck, *et al.* (2000). Their findings show that stock price synchronicity is higher in countries with low Gross GDP and lower in countries with higher GDP. Their finding also reveals that countries with higher GDP are better off in governance as compared to countries with lower GDP. Their findings support Morck *et al.* (2000) findings and use of stock price synchronicity as measure of stock price informativeness.

Moreover, Jin & Myers (2006) investigate stock price synchronicity across 40 stock markets. They find that poor governance and opacity firm are associated with less informative stocks. Similarly, Daouk, *et al.* (2006), conducted study using 22 equity indices across countries; they find that improved capital markets are associated with both lower synchronicity and cost of capital.

Subsequently, Jing (2011) investigates the association between stock price informativeness and quality of governance across countries. The finding reveals that stock price informativeness increases with increase in quality of firm governance. Similarly, Gul *et al.* (2011) investigate the association between stock price informativeness and board composition in USA. Their findings reveal that more information is impounded into stock price when board composition is gender diverse.

Gelb & Zarowin (2002) investigate the association between corporate disclosure and stock price informativeness of USA companies from 1980-1993. Their findings reveal that positive association between the corporate disclosure and stock price informativeness. Likewise, Watanabe & Trulaske (2012) examine the association between transparency and stock price informativeness in European Union. Their findings reveal a positive association between stock price informativeness and transparency.

Similarly, Bushman *et al.* (2004) conducted a study to assess relationship between corporate transparency and synchronicity across countries. Their findings reveal that lower stock price synchronicity is associated with countries with strong financial structure and strong legal system. Likewise, Kim & Shi (2007) examine the impact of improved disclosure via IFRS and stock price synchronicity across countries. Their findings show that adoption of the IFRS result to the decline in the stock price synchronicity.

Using 55,357 firm year observations data from 44 countries spanning from 1993 to 2003, Cahan *et al.* (2007) investigated the relationship between stock informativeness and earnings quality measured by income smoothing. Their findings show that stocks are more informative in countries with higher income smoothing and higher investor's protection. Their findings suggest that earnings quality improves stock price informative.

By using auditor tenure as proxy of earnings quality that mitigate the cash flow problems, Cheung *et al.* (2005) their findings reveal that higher earnings quality is positively related to stock price informativeness. Their finding support notion that longer auditor's tenure in a firm help auditor to provide monitoring that ensures high quality of reported earnings thus more firm specific information is impounded into stock prices. They also find that firm with poor governance measured by free cash flow and low growth opportunities are less informative stocks.

Similarly, Jing (2007) investigated the relationship between stock price synchronicity and earnings quality proxies' accrual quality, smoothness, predictability, persistence, value relevance, timelines and conservatism. Based on a sample of 7,422 firm year observations of USA companies from 1996 to 2004 the study find that stock price synchronicity is significantly negatively related to earnings quality indicators measured by. The overall findings suggest that quality earnings matters in the process of incorporating firm specific information into stock. However, conservatism which is among the proxy for earnings quality shows insignificant relationship with stock price synchronicity. This also questions the ability of each proxy of earnings quality to influence stock prices.

In contrast to Jing (2007), Teoh *et al.* (2007) conducted study to examine the relationship between earnings quality indicators (predictability and persistence) and stock price synchronicity using USA firms from 1964 to 2002. Their findings reveal that a positive relationship between earnings quality indicators and stock price synchronicity. The overall findings suggest that earnings quality do not influence stock prices.

Likewise, Johnston (2009) examined the relationship between stock price synchronicity and earnings quality measured by accrual quality using 33,771 firms years observation for 5,561 USA companies from 1993-2007. The study finds that the quality of accruals is negatively related to stock price synchronicity. This finding suggest that accrual quality which captures earnings quality measured matters most in the process of impounding firm specific information into share price. This findings support that stock price synchronicity as the measure of firm specific information.

In contrast to Johnston (2009), Rajgopal & Venkatachalam (2011) using idiosyncratic volatility as proxy for stock price informativeness, they examined relationship between stock price informativeness and accrual quality as proxy of earnings quality. Their findings reveal a negative relationship between accrual quality and stock price informativeness.

The evidence presented so far show mixed findings on the relationship between stock price informativeness and earnings quality proxies (Cheung *et al.* 2005; Jing 2007; Teoh *et al.* 2007; Johnston 2009, Rajgopal & Venkatachalam 2011). Therefore, we investigate the relationship between stock price informativeness measured by stock price synchronicity and earnings quality proxies' smoothness and earnings surprise in India stock market to uncover the relationship in emerging market.

3. Research Methodology and Data

The research employed quantitative research approach to investigate the relationship between stock price informativeness and earnings quality measured by smoothness and earnings surprise. We follow systematic inquiry process using explanatory study to assess the relationship between measures of earnings

quality on stock price informativeness. The rationale of following explanatory inquiry is based on the basis that explanatory studies helps researcher to study problem to understand the relationship between variables under investigation (Saunders *et al.*, 2003). We employed panel regression analysis using pooled OLS with robust standard error to study the relationship between stock price synchronicity and both earnings surprise and smoothness using STATA statistical package.

We also hypothesized negative relationship between stock price synchronicity and both earnings surprise and smoothness.

H1: Earnings surprise is negatively related to stock price synchronicity

H2: Stock price synchronicity and smoothness are negatively related.

3.1. Sample Selection

This study used secondary data extracted from Prowess data base for companies listed in BSE 500. The sample period is seven year spanning from 2006 to 2012, with 1,197 firm year observations. However, the study also required a longer sample period to estimate smoothness. We used ten rolling years to estimate smoothness and this increased of sample period to 16 years spanning from 1997 to 2012 for computing the value of smoothness.

3.2 Dependent Variable

We estimated our dependent variable stock price synchronicity as R-square of regressing current return on current and lagged market and industry return similar with study conducted by Piotroski & Roulstone (2004) as shown in equation 1.

$$RT_{j,t} = \beta_0 + \beta_1 MARKTR_{w,t} + \beta_2 MARKTR_{w,t-1} + \beta_3 INDR_{w,t} + \beta_4 INDR_{w,t-1} + w_{i,w} \quad (1)$$

Where:

$RT_{j,t}$ = Compounded return for company j for week t;

$MARKTR_{w,t}$ = Compounded weekly market return for weighted market index;

$INDR_{w,t}$ = Compounded weekly return for weighted industry index.

We transformed our independent to unbound range similar with previous studies as shown by equation two (Piotroski & Roulstone 2004; Jing, 2007; and Johnston 2009).

$$SYNC = \text{Log} \left(\frac{R^2}{1-R^2} \right) \quad (2)$$

3.3. Independent Variables

Our independent variables are earnings surprise indicator and smoothness which are measure of earnings quality. We measure smoothness as ratio of standard deviation of net income divide by total assets to standard deviation of cash flow divide by total assets (Leuz *et al.* 2003 and Francis *et al.* 2004).

$$SM = \text{sd} \left(\frac{NP}{TAB} \right) / \text{sd} \left(\frac{CF}{TAB} \right) \quad (3)$$

Where:

SM = Smoothness; sd = Standard deviation;

NP = Net income before extra ordinary activities;

TAB = Total assets at the beginning of the year for firm i in time t;

CF = Cash flow from operation for firm i in time t.

We used ten rolling years estimate the value of smoothness similar with prior studies (Leuz *et al.*, 2003 and Francis *et al.*, 2004). The lower value of smoothness indicates high earnings quality and higher value of smoothing indicates lower earnings quality. We also negate the value of smoothness so that large value indicates high quality and small value indicates poor quality of the earnings for the purpose of ordering of our independent variable (Francis *et al.*, 2004). We also measure earnings surprise indicator as the ratio of net operating assets at the beginning to sales (Barton & Simko 2002, and Abdelghany 2005).

$$\text{Earnings surprise indicator} = \text{Net operating assets at beginning} / \text{Sales} \quad (4)$$

The smaller the earnings surprise indicates higher quality of the reported earnings and the large the ratio the poor the quality of the reported earnings. Therefore the study will negate the value so that large value represents higher quality and small value indicates poor quality of the earnings (Francis *et al.*, 2004).

3.4. Model development

We follow model used by prior studies to study the relationship between synchronicity and both smoothness and earnings surprise (Jing 2007 and Johnston 2009). The model is presented in equation five below.

$$\text{syn}_{i,t} = \alpha_0 + \alpha_1 \text{eq}_{i,t} + \alpha_2 \text{res}_{i,t} + \alpha_3 \text{sdroa}_{i,t} + \alpha_4 \log \text{mv}_{i,t} + \alpha_5 \text{io}_{i,t} + \alpha_6 \text{ic}_{i,t} + \alpha_7 \text{nfi}_{i,t} + \alpha_8 \text{fsc}_{i,t} + \psi_t \quad (5)$$

Where:

$\text{syn}_{i,t}$ = Stock price synchronicity for firm i at time t;

$\text{eq}_{i,t}$ = Earning quality for firm i at time t (smoothness, earnings surprise);

$\text{res}_{i,t}$ = Idiosyncratic risk for firm i at time t;

$\text{sdroa}_{i,t}$ = Standard deviation of return on asset;

$\log \text{mv}_{i,t}$ = Size for firm i at time t;

$\text{io}_{i,t}$ = Institutional ownership for firm i at time t;

$\text{ic}_{i,t}$ = Industry concentration for industry i at time t;

$\text{nfi}_{i,t}$ = Number of firms in industry at time t;

$\text{fsc}_{i,t}$ = Firm specific concentration at time t;

ψ_t = Error term.

We include control variables similar with prior studies (Jing 2007 and Johnston 2009). We control for size, idiosyncratic risk, firm volatility, industry concentration, firm specific concentration, institutional ownership and number of firm in industry.

4. Empirical results

4.1. Descriptive statistics

Table 1 presents descriptive statistics for our variables under study. The total number of firm's observation used to compute descriptive statistics is 1,197. Our average value of stock price synchronicity is -0.436 which is smaller as compared to values of -2.624 and -1.644 reported by Jing (2007) and Johnston (2009). However, difference might be attributed by efficiency of capital in emerging market (Morck *et al.* 2000; Durnev *et al.* 2004). We also find that mean value of 1.383 for earnings surprise indicator which is low compared to value of 2.66 reported by Barton and Simko (2002). This value suggests that net operating asset exceed slightly the value of sales for most firms. Also, the mean value of smoothness is 0.908 which in line with mean of 0.805 reported by Jing (2007) in study conducted in USA. Our average value of idiosyncratic risk

is 0.024. The mean value of size is 4.613 which in line with value of 4.341 reported by Jing (2007) and slightly below the value of 5.579 reported by Johnston (2009). Moreover, the average value of institutional ownership is 0.207 which is slightly below average value of 0.293 reported by Johnston (2009). This indicates institutional ownership on average in India is less as compared to USA. Our average value of industry and firm specific concentration are 3.07 and 0.056. The average number of firm in industry is 3.158 which slightly lower as compared to value of 4.975 reported by Johnston (2009). Our average value of firm volatility is 4.019 which higher than value of 1.14 reported by Jing (2007). However, we use annual return on asset while Jing (2007) used quarterly return on asset in computing the value of firm volatility, longer time used by our study may have contributed to increase in volatility.

Table 1. Descriptive statistics

	μ	δ	ρ_{50}	Kurtosis	Skewness	Min	Max	N
$syn_{i,t}$	-0.436	0.527	-0.3426	2.127	-1.151	-2.912	0.611	1,197
$es_{i,t}$	1.383	0.9869	1.0727	1.6031	1.443	0.287	4.808	1,197
$res_{i,t}$	0.024	0.0164	0.0199	5.044	1.7878	0.0016	0.1350	1,197
$sm_{i,t}$	0.908	0.622	0.801	17.715	2.7824	0	6.927	1,197
$sdroa_{i,t}$	4.019	3.4705	3.135	9.278	2.556	0.126	26.673	1,197
$\log mv_{i,t}$	4.613	0.638	4.518	-0.0492	0.5306	2.7988	6.62201	1,197
$io_{i,t}$	0.207	0.113	0.216	-0.721	0.072	0.0002	0.5670	1,197
$ic_{i,t}$	3.070	0.1806	3.049	-0.4635	0.120	2.738	3.562	1,197
$nfi_{i,t}$	3.158	0.495	3.295	0.71528	-1.000	1.386	3.7841	1,197
$fsc_{i,t}$	0.056	0.079	0.0266	7.890	2.661	6.134	0.507	1,197

Notes: This table presents descriptive statics of firm characteristics of the full sample used to investigate relationship between stock price synchronicity and earning surprise indicator ($es_{i,t}$). $syn_{i,t}$ is the transformation of R-square to form unbounded number, $es_{i,t}$ = net operating assets scaled by sales, $sm_{i,t}$ =smoothness, other variables are control variables defined in model development section. N=number of observation, ρ_{50} =median, μ =mean, δ =standard deviation.

4.2. Pairwise Correlation

Table 2 reports the Pairwise correlation among variables at 5% level of significance. We did not find any significant between earnings surprise and smoothness. Smoothness is statistically negatively related to both industry concentration and number of firms in industry with correlation coefficient of -0.074 and -0.115. We also find smoothness is significantly positively related firm volatility with correlation coefficient of 0.437. Moreover, earnings surprise is significance positively correlated to both idiosyncratic risk and firm volatility with correlation coefficient of 0.144 and 0.138. We also find earnings surprise is negatively correlated to number of firm in industry correlation coefficient of -0.132. In general we find that the correlation between earnings surprise and other control variable is not very high, we find it less than correlation coefficient of 0.8 which indicates less problem of multi-collinearity (Field 2006). Likewise the correlation between smoothness and other control variable is far below the cut-off of 0.8.

Table 2. Pairwise Correlation

	$sm_{i,t}$	$es_{i,t}$	$res_{i,t}$	$sdroa_{i,t}$	$\log mv_{i,t}$	$io_{i,t}$	$ic_{i,t}$	$nfi_{i,t}$	$fsc_{i,t}$
$sm_{i,t}$	1								
$es_{i,t}$	-0.006	1							

	$sm_{i,t}$	$es_{i,t}$	$res_{i,t}$	$sdroa_{i,t}$	$\log mv_{i,t}$	$io_{i,t}$	$ic_{i,t}$	$nfi_{i,t}$	$fsc_{i,t}$
$res_{i,t}$	0.039	0.144*	1						
$sdroa_{i,t}$	0.437*	0.138*	0.108*	1					
$\log mv_{i,t}$	-0.037	0.032	-0.244*	-0.067*	1				
$io_{i,t}$	-0.006	-0.030	-0.149*	-0.112*	0.286*	1			
$ic_{i,t}$	-0.074*	0.073*	-0.031	-0.055	0.077*	0.041	1		
$nfi_{i,t}$	-0.115*	-0.132*	0.171*	0.1512*	-0.081*	-0.009	-0.423*	1	
$fsc_{i,t}$	-0.054	-0.0467	-0.119*	-0.094*	0.387*	0.185*	0.319*	0.356*	1

Notes: The table reports the Pairwise correlation among variables for the full sample. * donates statistical at 5% level of significance.

4.3. Results of tests

This section reports the results of tests employed and regression output. Table 3 presents the results of heteroskedasticity test. We run individual Breusch-Pagan test for heteroskedasticity for investigating relation between synchronicity and both earnings surprise and smoothness. For both case we rejected the null hypotheses of constant variance since the chi-square values reported in table 3 are (37.18 and 20.95) far beyond chi-square of 3.84. To mitigate the problem of heteroskedasticity we used statistical package STATA with standard error robust command (Thompson 2011).

Table 3. Breusch-Pagan/Cook-Weisberg test of heteroskedasticity

Synchronicity and earnings surprise relationship	Synchronicity and smoothness
Ho: Constant variance	Ho: Constant variance
chi2(8) = 37.18	chi2(8) = 20.95
Prob > chi2 = 0.0000	Prob > chi2 = 0.0073

Notes: This table presents results of heteroskedasticity test using Breusch-Pagan test.

Table 4 report the results of multi-collinearity test. We employed variance inflation factor test for multi-collinearity among independent variables. We run the test for assessing multi-collinearity between synchronicity and earnings surprise. We find that variance inflation factor ranges from 1.08 to 2.42. We also run the same for assessing multi-collinearity between synchronicity and smoothness we find that the value of variance inflation factor ranges from 1.14 to 2.42. In both cases we find that variance inflation factor is far below the cutoff point of 10 (Hair *et al.* 1995, Gujarat 2003). This provided evidence of no problem of multi-collinearity among our independent variables.

Table 4. Variance inflation test of multi-collinearity

	Synchronicity and Earnings surprise	Synchronicity and smoothness
$es_{i,t}$	1.15	-
$sm_{i,t}$	-	1.33
$res_{i,t}$	1.15	1.14
$sdroa_{i,t}$	1.08	1.4
$\log mv_{i,t}$	1.75	1.7
$io_{i,t}$	1.17	1.15
$ic_{i,t}$	2.15	2.13
$nfi_{i,t}$	2.42	2.42

$fsc_{i,t}$	2.02	1.95
Mean VIF	1.61	1.65

Notes: This table reports result of multi-collinearity test using variance inflation factor

We alleviated the problem of outliers by winsorization of our dependent variable at 99% and 1%, which resulted to 59 firm observation been winsorized out of total 1,194 firm year observations. We also use deciles rank of variables independent variable in investigating the relationship between synchronicity and both earnings surprise and smoothness.

3.3.1 Pooled regression results

Table 5 reports the results of regressing synchronicity on each earnings quality indicator using 1,197 firm year observation. Model 1 report the results of regressing synchronicity on earnings surprise indicator and model 2 report results of regression synchronicity on smoothness. We use statistical package STATA and clustered for both firm and time to capture cross sectional and time series dependence. The result reveals that stock price synchronicity is statistically significance negatively ($\alpha_1 = -0.469$) related to earnings surprise at 1% level of confidence. This findings support our hypothesis stated in alternative that stock price synchronicity is negatively related to earnings surprise. We also find that there is insignificant relationship between stock price synchronicity and smoothness. This results do not support our hypothesis stated in alternative that stock price synchronicity is negatively related to smoothness of earnings. Similarly we find that stock price synchronicity is significantly negatively ($\alpha_3 = -0.338$, -0.1936) related to idiosyncratic risk similar with prior findings of Johnston 2009 in USA. We also find that size is negatively correlated with stock price synchronicity ($\alpha_4 = -0.249$, -0.1427). Moreover, we find that industry concentration is positively ($\alpha_6 = 0.354$, 0.0719) related to stock price synchronicity. Finally we did not find significant relationship between stock price synchronicity and both firm volatility and institutional ownership.

Table 5. Regression of stock price synchronicity on both earnings surprise indicator and smoothness

$$syn_{i,t} = \alpha_0 + \alpha_1 eq_{i,t} + \alpha_2 res_{i,t} + \alpha_3 sdra_{i,t} + \alpha_4 \log mv_{i,t} + \alpha_5 io_{i,t} + \alpha_6 ic_{i,t} + \alpha_7 nfi_{i,t} + \alpha_8 fsc_{i,t} + \psi_t$$

	Model 1	Model 2
Intercept (α_0)	-0.469*** (0.00)	-0.8307*** (0.00)
Earnings surprise indicator (α_1)	-0.3215*** (0.00)	-
Smoothness (α_2)	-	0.0908 (0.125)
Idiosyncratic risk (α_3)	-0.338 *** (0.00)	-0.1936 ** (0.001)
Firm volatility (α_4)	-0.0569 (0.429)	-0.0066 (0.925)
Size (α_5)	-0.249** (0.03)	-0.1427 ** (0.031)
Institutional ownership (α_6)	0.0161 (0.832)	0.0719 (0.191)
Industry concentration (α_7)	0.3544 *** (0.00)	0.37506 *** (0.00)
Number of firm in industry (α_8)	-0.4687** (0.005)	0.2927 *** (0.00)
Firm specific concentration (α_9)	-0.322*** (0.00)	0.363*** (0.00)
R-square	10.54%	7.82%
Number of observation	1,197	1,197

Notes: This represents results of pooled OLS regression using standard error (clustered by firm and year). The values presented in parentheses represent the probability values attached to the coefficient. ***, ** and * represent levels of significance at 1%, 5% and 10% respectively according to two tailed hypotheses.

5. Discussion of the results

Our overall results document a negative relationship between earnings surprise and stock price synchronicity as proxy for stock price informativeness. Our findings are similar to Jing (2007). This result suggests that as the quality of earnings improves as proxied by earnings surprise this result to more informative stocks. This findings show that earnings surprise matters in the process of impounding firm specific information. We also find that there is no relationship between stock price synchronicity and earnings quality proxy smoothness of earnings. Our findings resemble findings reported by Teoh *et al.* (2007) that reveal that earnings quality does not influence stock price informativeness. Since synchronicity is inverse measure of informativeness this result reveal that as there is insignificant relationship between stock price informative and smoothness of reported earnings. Therefore, this result implies that smoothness of earnings do not influence the amount of firm specific information incorporates into share price.

In overall, our findings show mixed results on the relationship between stock price informativeness and earnings quality proxies' earnings surprise and smoothness of earnings.

6. Implication to research and practice

Our results have implication on current research in accounting and finance. First, we posit evidence that earnings surprise matters in India stock market in resources allocation, this information may be used by analyst and market participants to identify stock to buy. Second we empirically report that smoothness of earnings do not influence stock price informativeness, therefore should not be used by analyst in trading activities.

However, our study has several limitations. First, inconsistency relationship between stock price synchronicity and earnings quality measures makes us unable to generalize our findings. Second, we think also stock price synchronicity is influence by other factors such as corporate governance and regulatory framework like investor's protection, insider dealings which are difficult to control.

7. Conclusion

We examine the relationship between stock price synchronicity and earnings quality measured by earnings surprise and smoothness. We measure smoothness as ratio of net income variability to cash flow from operation variability similar with prior studies Francis *et al.* (2004) and Jing (2007). We also measure earnings surprise as net operating asset at beginning scaled by sales (Desai *et al.* 2006).

We first examine the relationship between stock price synchronicity and earnings surprise. We find that there is significant negative relationship between earnings surprise and stock price synchronicity. This result is consistency with our prediction that as earnings quality improves stock price informativeness.

Finally, we examine the relationship between stock price synchronicity and smoothness. We find that there is no significance relationship between smoothness and stock price synchronicity. This result is contrary with our prediction that as earnings quality improves stock price informativeness.

Our findings have implications to analyst, investors and other market participants that they should use earnings quality proxies that influence stock price informativeness for better allocation of resources in capital markets.

8. Future Research

Finally, there is a need of further research to investigate the relationship between stock price informativeness and other earnings quality proxies such as relevance, timelines and conservatism. That will provide deeper understanding of relationship between stock informative and earnings quality proxies in Indian stock market for better resources allocation.

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