

# Accrual Quality and Stock Price Informativeness: Evidence from India.

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## Abstract

This study examines the relationship between accrual quality and stock price informativeness. Study used secondary data collected from prowest database similar to prior studies Ansari & Khan 2012 and Dhole, et al. 2012. The study used sample of 91 companies listed in BSE 100 during the period of 2007 to 2011. We employed Breusch-Pagan Lagrange multiplier (LM) to select panel regression model and also eliminate the effect of outliers by deciles rank of accrual quality similar with prior study (Johnston 2009 and Jing 2007). We employed random effect panel regression model to investigate relationship between accrual quality and stock price informativeness. The results suggest that accrual quality is positively related to stock price informativeness. The present findings are similar with Jing (2007) and Johnston 2009 who find positive significantly association between accrual quality and stock price informativeness in USA. Results support that accrual quality matters in the process of incorporating firm specific information.

**Keywords:** Stock price informativeness, Stock price synchronicity, Earnings quality, and Accrual quality: synchronicity and informative will be interchangeable to mean inverse of each other.

## 1. Introduction

Stock price informativeness has attracted interest in capital market research for the past three decades (Roll, 1988, Mock, et al 2004, Wurgler 2000; Durnev, et al 2004; Piotroski and Roulstone 2004; Cheng, et al. 2013). It is becoming difficult to ignore the importance of stock price informativeness in financial markets because as it represents resources allocation. In addition, improvement of stock price informativeness results into efficiency allocation of capital in financial market. Moreover, the importance of improving the stock informative has been increasingly international recognized by regulator and policy makers (Durnev, et al. 2004; and Chen, Goldstein & Jiang, 2007).

The financial system in India is divided in three phase, Pre-1951, 1951-to mid 1980 and post nineties (Khan 2000). The post nineties was characterized by profound transformation of the financial system to free market economies. Many reforms were implemented in this era for example banking reforms, capital market, privatization, tax reforms, trade liberalization, and other many (Khan 2000). The early 1990s reflects the recognition of the need to improve informative of share price so as stimulate efficiency allocation of capital and support economic growth. Understanding factors influencing stock price informativeness is key issue now for regulators and policy makers in India so as to improve resources allocation in capital markets and attract more foreign direct investment.

Since stock price informativeness is influenced by two factors, first factor is release of public information such as earnings while second factor is arbitragers trading activities in financial markets (Durnev, et al. 2004). In this study, we focus on earnings specifically earnings quality indicator that influence stock price informativeness. Although there are many earnings quality indicators that reflect the quality of earnings in this study we are interested on accrual quality indicator. We specifically investigate the relationship between accrual quality and stock price informativeness. Similar to prior studies, this study uses stock price synchronicity as measure of stock price informativeness.

Prior studies Jing 2007 and Johnston 2009 using synchronicity as measure of stock price informativeness investigate the relationship between informativeness and accrual in USA. They find a positive association between accrual quality and stock price informativeness. However, use of synchronicity as measure of stock price informative has been criticized by prior research (Kelly 2007; Skeife, et al. 2006; Rajgopal & Venkatachalam 2011).

This study derives its motivation from two reasons. First is on contemporary debate on the ability stock price synchronicity to measure firm specific information impounded into share price. Despite synchronicity been used extensively in measuring information efficiency, debate on ability of synchronicity as measure of stock price informative is not yet resolved. Therefore this paper is interested to test the theory in emerging market

particularly in India.

Second, a considerable amount of prior researches examine relationship between accrual and stock have been done in developed economy particularly USA (Jing 2007 and Johnston 2009). Therefore, this study is motivated to study the relationship between accrual quality and stock price informativeness in emerging market particularly India where business settings and financial standards are not similar to developed economies where there are more efficient market and financial reporting system. To my best knowledge no study has done in India to study this relationship, therefore this study is interested to fill the knowledge gap in emerging market.

The rest part of this paper is structured as follows; section two covers the review of literature. Section three discusses research design, data, and model specification. Section four presents descriptive statistics, correlation and regression output. Section five forms the conclusion of this research paper.

## 2.0 Literature Review

This section explains the key parameters in this study and summarizes the empirical findings relating stock price informativeness and accrual quality. However, as we go through the literature we found out limited studies link direct accrual quality and stock price informative, therefore this part will also discuss prior studies that are closely related to the topic.

### 2.1. Accrual quality

Barth, et al 2001 reveals that accrual play vital role in forecasting future cash flow of entity. Accrual quality has been defined differently by researchers. Accrual quality is defined “as the extent to which accrual map into cash flow realization, where a poor match signifies low accrual quality” (Dechow & Dichev, (2002, 36p). However, the term also accrual quality refers to the closeness of cash flow and reported earnings where small difference indicates high quality (Richardson, et al. 2001; Desai, et al. 2006).

The accrual quality indicators which measures the quality of reported earnings split into two major types; first those focusing on magnitude of accrual (Desai, Krishnamurthy, & Venkataraman, 2006; Richardson 2003), second, those focusing on the error in estimating accruals (Francis, et al.2005; Sloan 1996; Jones, 1991). However, the two types of accrual quality leads to difference in interpretation of accrual quality, while the first focus on the magnitude as base on difference between profit and net cash flow from operation, the second focus on error in estimating the accrual. The two types of indicators are commonly used to measure accrual quality; however this study will follow magnitude of accrual in assessing the relationship between accrual quality and stock price informativeness.

Jing (2007) affirm that earnings quality gets better when accrual is well estimated and used to spot out irrelevant changes in cash flow. The study also reveals that, the quality of reported earnings decreases when accruals is used by preparers of financing report to hide important changes in the cash flow of an entity. Furthermore, Leuz, Nanda & Wysocki (2003), show that accrual quality is commonly used as proxy measure of earnings manipulation; large amount of reported accrual by company can be sign of earnings manipulation and represent poor quality of the reported earnings entity.

### 2.2 Stock price informativeness

Stock price informativeness is defined as the extent to which firm specific information is impounded into stock price (Wurgler, 2000; Chen, Goldstein & Jiang, 2007; Gul, Srinidhi, & Ng, 2011; Ferreira, et al. 2011). Therefore more informative stock prices refers to firm stock that incorporate more firm specific information and less informative stocks refers to firm stock impound less firm specific information.

Stock price synchronicity is inverse measure of stock price informativeness, therefore lower stock price synchronicity refers to more informative stocks and higher stock price synchronicity refers to less informative stocks.

Studies have used various stock price informativeness methods such as stock price synchronicity, PIN and zero return matrixes as measure extent of firm specific information impounded into stock prices (Easley, et al. 1996; Gelb, & Zarowin, 2002; Skeife, et al. 2006). However, stock price synchronicity is prominent measure of informativeness of share price (Chen, et al. 2007; Gul, Srinidhi, & Ng, 2011; Ferreira, et al, 2011).

### 2.3. Empirical Literature

Morck, et al. (2000) conducted study to evaluate synchronicity of stock markets across developed and emerging countries. The study used data for 40 countries from developed and emerging economies finds that stock returns are more synchronous in emerging countries than in developed countries. The findings suggest that stocks are less informative in emerging economies than in developed economies. Furthermore, the study reveals that strong

investor's protection is associated with more informative stock prices. However, Skeife, et al. (2006) using the same model used by Mock et al. (2000) finds that there is no significant evidence to support stock price synchronicity as measure of price discovery (informative stock price) in international market. Their findings affirm that more informative countries are associated with large forecasting errors. However, these findings contradict synchronicity as measure of stock price informativeness.

Wurgler (2000) and Durnev, et al. (2004) find that stock price informativeness is significant positively associated with efficient allocation of capital in financial markets. Piotroski & Roulstone (2004) and Chan & Chan (2011) find that insider dealing, securities that are covered investors accelerate the process of impounding more firm specific information on stock prices, hence negative relationship between synchronicity and securities cover more by analyst. In contrast, Chan & Hameed (2006) find that securities that are covered more by analyst are positively related to the stock price synchronicity contrary with the notion of price synchronicity as measure of firm specific information impounded into share price.

Consequently, Kim & Shi (2007), Bushman, et al. (2004), Watanabe & Trulaske (2012), and Dasgupta, et al (2010) find that lower stock price synchronicity is significantly associated with higher transparency. This means that higher transparency is represent better price discovery (more informative firms). In addition, the findings reveal that lower transparency is associated with less informative firms. In contrast to the aforementioned studies Kelly (2007), finds that more informative firms measured by stock price synchronicity are associated with few informed trading, high trading cost and greater degree of information asymmetric. This findings contract the use of synchronicity as measure of stock price informativeness.

Recently, Cheng, et al. (2013) examines the relationship between stock price informativeness and output growth in 62 emerging markets. The finding affirms that there is positive relationship between stock price informativeness and output growth in emerging economies. This result affirms that stock price informative is good indicator for measuring capital allocation based on output growth. In this context, the results are consistency with prior studies that support stock price informativeness as measure of firm specific information incorporated into share price.

Jing (2007) investigated the relationship between stock price synchronicity and earnings quality indicators. Using data from USA stock markets the study found that stock price synchronicity is significantly negatively to accrual quality. The findings imply that companies with high accrual quality are more informative thus incorporate more firm specific information on their share price. Similarly, firms with lower accrual quality are less informative and hence are associated with less firm specific information impounded into share price. In this context, finding shows that accrual quality is important parameter that matters in the process of incorporating firm specific information.

Consequently, a study conducted by Johnston (2009), using USA data from COMPUSTAT database from 1993-2007 finds that the quality of accruals is positively related to stock price informativeness. This finding suggests that accrual quality matters in improving information efficiency.

In contrast to Jing (2007) and Johnston (2009) and Rajgopal & Venkatachalam (2011) posit findings that are contrary with stock price synchronicity as measure of firm specific information incorporated into share price. In their study they find that higher idiosyncratic volatility that represents lower R-square in regressing asset pricing model is positively related to poor accrual quality. In this context, one may argue that lack of consistency in stock price informativeness measure signal that more studies need to be conducted to uncover the truth from various markets.

Collectively, these studies show the importance of improving accrual quality as mechanism of improving stock price informativeness which signals efficient resources allocation in capital markets. However, mixed results reported from prior studies question the ability of synchronicity to measure stock price informativeness have also emerged. The finding for prior studies provide avenue to investigates the relationship between accrual and stock price informativeness in India where tremendous inflows of foreign investment have been see in recent years.

### **3.0 Research Design**

The study employed panel technique using multivariate analysis which enabled the study to capture firm specific observation with time. The study use multivariate analysis technique to study relationship between accrual quality and stock price informativeness. Multivariate analysis is influential methods for analyzing relationship among many variables, it helps to control for other factors that may influence the study results and able to

measure relationship that may not be captured by pure cross sectional or time series (Cooper & Schindler 2003).

### 3.1 Hypothesis Development

Our study investigates the relationship between accrual quality and stock price synchronicity. Since as accrual quality improves more firm specific information are incorporated into share we propose the main hypothesis in alternative form as below.

H1: There is negative relationship between stock price synchronicity and accrual quality.

Thus, a negative and significant value of coefficient of  $\alpha_1$  from equation 4 will support the alternative hypothesis proposed by our study.

Since our study uses stock price synchronicity which is inverse measure of stock price informativeness, a negative relationship between synchronicity and accrual quality will imply positive relationship between accrual quality and stock price informativeness.

### 3.2 Data and sample size

The study use secondary data extracted from Prowess database that is maintained by the Center for Monitoring Indian Economy similar to prior studies Ansari & Khan (2012) and Dhole, et al. (2012) who studied momentum anomalies and business group affiliation and earnings quality in India.

The sample period for this study is 5 years ranges from 2007 to 2011. The sample is comprised of 91 companies listed in BSE 100 after removing companies with missing information for computing earnings quality indicators, stock price synchronicity and control variables.

### 3.3 Measurement of variables and Model specification

#### 3.3.1 Dependent Variable

We compute the value R-square by regressing firm return on market on current and lagged market to obtain our independent variable similar with Watanabe & Trulaske (2012) as given in equation 1.

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

Where,

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

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

$MARKTR_{w,t-1}$  = Lagged compounded weekly market return index.

The study follow Piotroski & Roulstone (2004) and Johnston (2009) log transformation of synchronicity from the bounded value of 0 to 1 to make the dependent variable continuous variable. In this context, the transformation of the dependent variable usually results to variable with normal distribution.

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

#### 3.3.2 Independent Variable

We use accrual quality as independent variable in this study similar with prior studies (Richardson (2003). It is given by difference between earnings before extraordinary item and cash flow operation scaled by average asset as depicted in equation 3 below. Furthermore, lower value of accrual represents better earnings quality and higher the value of accrual represents poor quality of the reported earnings. We follow prior studies to negate the value of accrual so that large value indicates high accrual quality and small value indicates poor quality similar with prior studies Francis, et al. 2004 and Jing, 2007.

$$(AQ) = \left( \frac{\text{Earnings} - \text{CFO}}{\text{AverageAssets}} \right) \quad (3)$$

Where,

AQ = Accrual quality

Earnings = Earnings before extraordinary item,

CFO = cash flow from operations

#### 3.3.3 Model Specification

The study follows the model similar to the one used by Johnston (2009), to study relationship between accrual quality and stock price informativeness measured by stock price synchronicity. The model is given below in the

following equation 4.

$$SYNC_{i,t} = \alpha_0 + \alpha_1 (AQ) + \alpha_2 IDRISK_{i,t} + \alpha_3 InstOwner_{i,t} + \alpha_4 Ln(MV_{i,t}) + \alpha_5 Reg + u_{i,t} \quad (4)$$

$SYNC_{i,t}$  = Stock price synchronicity for firm i in year t

$(AQ)$  = {Accrual quality}

$IDRISK$  = Idiosyncratic risk for firm i in year t

$Ln(MV)$  = Natural log for market value of equity of firm i at the beginning of year

$InstOwner$  =Percentage institutional ownership

Reg= Dummy variables equal to one for regulated industries and zero otherwise.

Control Variables

The study included control variables to control for some variables that may affect synchronicity as measure of stock price informativeness similar to prior studies (Piotroski & Roulstone 2004, Zing 2007 and Johnston 2009).

We include sum of squared residual from equation 1 to control for idiosyncratic risk ( $IDRISK$ ) like prior study conducted by Johnston 2009. Since idiosyncratic risk negatively and stock price synchronicity related (Johnston 2009), we predict negative relationship between stock price synchronicity and idiosyncratic risk.

We also control for the size by including log of the market value of equity  $Ln(MV)$  alike prior studies (Piotroski & Roulstone 2004 and Johnston 2009). Large firm have ability to offer more information as compared to small firm. In this context, we predict negative relationship between synchronicity and size.

We control for institutional ownership by including log of one plus institutional ownership similar to prior study (Johnston 2009). Institutional investors have power to obtain firm specific information from managers, however may also trade using broad indexes (Johnston 2009). We predict negative relationship between synchronicity and institutional ownership.

We also control for regulated firm by including one for financial institution or zero otherwise similar with prior studies (Johnston 2009). Regulated firms are subject to same conditions, we predict positive relationship with stock price synchronicity (Johnston 2009).

#### 4.0 Empirical Results

This part covers descriptive statistics; it discusses the correlation among variables and last discusses the result of regression analysis.

##### 4.1 Descriptive Statistics and Correlation

Table 1 provides information on the descriptive statistics for six variables used in this study. Our average stock price synchronicity is -0.2950759 and standard deviation of 0.457642, the average value is slightly close to the finding of Gul, et al, (2010) of -0.232. The mean value is too large compared to studies by Piotroski and Roulstone (2004) and Johnston2009) which report means of -1.742, and -1.644 respectively. The accrual quality measure has a mean of -0.0889 which is slightly lower than mean value of accrual quality of 0.09 reported by Richardson (2003).

In addition, table 1 shows that average institutional ownership is 0.31 which is slightly closer to the findings of Johnston (2009) of 0.293. Size as proxied by natural log of market value of equity has a mean of 12.34 which is higher compared to other studies done by Piotroski and Roulstone (2004) and Johnston (2009) which reported mean of 4.836 and 5.579.

Furthermore, mean value of idiosyncratic risk is 0.028143 which is too low compared to the findings of the study done by Johnston (2009) which reported a mean of 0.345.

Table 2 reports the results of pair wise correlation of the variables included in the model. We find a negative correlation between synchronicity and accrual quality not significance at 5% level. We also find there is positive correlation between synchronicity and both institutional ownership and regulated firm at 5% significance level. Furthermore there is significant negative correlation between idiosyncratic risk and accrual quality at 5% level of significance. Furthermore, size as proxied by log market value of equity is statistically negatively correlated with idiosyncratic risk at 5% significance. In addition regulated firms are statistically positively correlated to idiosyncratic and institutional ownership.

##### 4.2 Statistical test and regression output

The study used deciles rank of accrual quality attribute in finding the relationship between stock price informativeness and accrual quality (see Francis et al, 2005; Jing, 2007; Johnston 2009). This was done to

alleviate the effect of outliers that might influence the study.

This study employed panel data model. Breusch-Pagan Lagrange multiplier (LM) results to large chi-square of 82.2 which lead to the rejection of null hypothesis and support random effect model rather than pooled regression.

Table 3 below depicts the relationship between stock price informative and accrual quality. The coefficient of -0.1197 and p-value of 0.067 for  $\alpha_1$  affirms that there is significance negative relationship between synchronicity and accrual quality at 10% significance level. Since stock price synchronicity is an inverse measure of stock price informative, the findings imply that there significant positive relationship between accrual and stock price informative. The findings of this study is similar with previous studies Johnston (2009) and Jing (2007) that find positive association between stock price informativeness and accrual quality in USA. The finding support that as accrual quality improves more firm specific information is impounded into share price.

For the case of control variable we find that  $\alpha_3 = -0.0697$  with p-value of 0.005 that reveals negative relationship between synchronicity and size. Also we find that  $\alpha_5 = 0.3413$  with p-value of 0.000, affirm positive relationship between synchronicity and regulated firm. We do not find any significance relationship between synchronicity with idiosyncratic risk and institutional ownership.

### 5.0 Conclusion

This study empirically examined the relationship between accrual quality and stock price informativeness. We use stock price synchronicity as measure of stock price informativeness similar with prior studies (Beuselinck, et al 2010; Watanabe, & Trulaske, 2012). Using 455 firm year observations for 91 companies listed in BSE 100 from 2007 to 2007, we find that there is positive significant relationship between accrual quality stock price informativeness. The findings are similar with prior findings analyzing the same (Jing 2007; Johnston 2009) in USA.

Our study show that accrual quality matters in the process of incorporating firm specific information. However, there is need to carry further studies to investigate the relationship between stock price informativeness and other earnings quality indicators such as value relevance, smoothness, persistent, predictability, earnings surprise and conservatism.

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Table 1: Descriptive statistics

Variables	Obs	Mean	Std. Dev	Min	Max
Synchronicity (synch)	455	-0.29507	0.4576242	-2.496097	0.55401
Accrual quality (AQ)	455	-0.0889	0.169	-0.9128	0.2561
Idiosyncratic risk (IDRisk)	455	0.028143	0.0496618	0.0046786	0.71059
Ln market capitalization ln(Mv)	455	12.34556	1.057888	9.500451	15.2477
Institutional ownership (InstOwnwer)	455	0.3177837	0.1544743	0.0137	0.8832
Regulated firms (Reg)	455	0.1538462	0.3611984	0	1

Notes: Descriptive statistics of the variables included in this study. Obs stands for the number of firm year observation. Size is proxied by natural log of market value of equity at the begging of year. Institutional ownership is given by log of one plus percentage ownership. Regulated firm given by dummy variable, 1 stand for regulated firm and zero otherwise. Idiosyncratic risk is given by the residual of regression model for the synchronicity. Synchronicity is inverse measure of stock price informativeness.

Table 2: Pair wise Correlation of the Variables

	Sync	AQ	IDrisk	Ln(Mv)	InstOwner	Reg
Sync	1					
AQ	-0.0864	1				
IDrisk	0.0408	-0.0987**	1			
Ln(Mv)	-0.032	-0.0370	-0.1735**	1		
InstOwner	0.1099**	0.0377	0.0069	-0.1261**	1	
Reg	0.2664**	0.2036**	0.0194	-0.0545	0.1447**	1

Notes: pair wise correlation coefficient of the variables. \*\* depicts up to 5% level of significance. Other variables are defined in table 2 above.

Table 3: Regression Results

Dependent variable	Coefficient and probability values attached to independent variables						No. of observation	R-square
	$\alpha_0$	$\alpha_1$ AQ	$\alpha_2$ IDrisk	$\alpha_3$ Ln(Mv)	$\alpha_4$ InstOwner	$\alpha_5$ Reg		
synch	0.539 (0.088)	-0.1197 (0.067)*	0.4324 (0.251)	-0.0697** (0.005)	0.06717 (0.723)	0.3413*** (0.00)	455	0.0567

Notes: These represent results of random effect GLS regression. 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. Other variables are defined above in table 2.



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