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An Analysis of Institutional Investors, Information Asymmetry, and Stock Market Liquidity: Empirical Evidence from Pakistan Stock Exchange (A Sector Wise analysis in Pakistan Stock Exchange)

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Abstract

The endeavor of the empirical study is analyzing institutional investors (Ins.Invs) with respect to market liquidity (ML) and information asymmetry (Inf.Asym) in Pakistan stock exchange (PSX).A significant sample period of ten years was taken for fuel and energy, textile, food, and cement sectors by applying panel data econometric techniques to identify the relationship of Ins.Invs on ML and Inf.Asym. The secondary data of the variables have gathered from annual reports of the firms, published reports of the State Bank of Pakistan (SBP) and the official website of PSX. Using fixed effect model (FEM) based on Hausman test the study concluded that the Ins.Invs. positively and significantly affect the ML and Inf.Asym and declared that the investors are heterogeneous (both active and passive).

Keywords. Institutional Investors; Asymmetry; Liquidity; Non-Financial and Panel Data Model. JEL Classification: G10, G14, C23

Introduction

For any economy, developing financial markets and financial institutions is highly considerable and indispensable pillar of the growth process (Levine, 1997). Financial markets play vital role in order to support the trading of investments resulting in managing and sharing of risks. The markets offer rights to the investors on the assets such as bonds, shares and demand deposits that can be traded with ease while the market supports the long-term investment in the long-term production process.

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In the context of tax cost, market investors should different in them repurchases and dividend payout. The reason behind the question that why firms pay a dividend has been largely researched. In this connection, numerous studies have been conducted to answer the question that why the firms click the choice of re-buy stock and why the investors pick one mode of payment and drop others? Furthermore, the institutional investors affect the firm's payment policy. In light of above declaration, if true, then the institutional investor's effects the payout policy might vary with the institutional ownership (Black, 1976). The percentage of institutional investors in the American markets has stood at 70 % in 2013 (Gaspar et al. 2012).

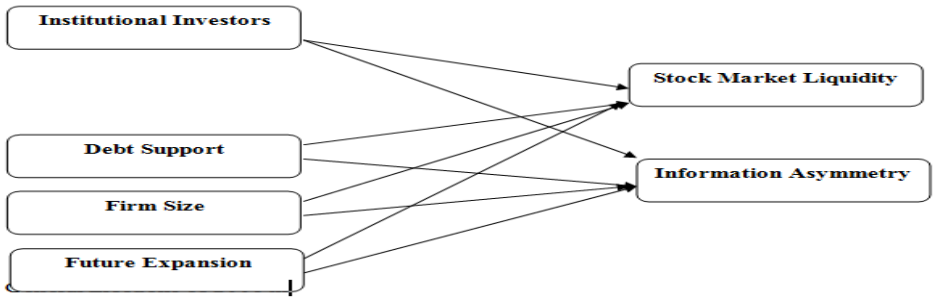
The institutional investors have preferences over other investors because of their high accessibility to the information in the market. Different studies show that market liquidity is the outcome of struggle of information among the most active investors in the market. The study of Admati and Pfleiderer (1988) introduces models concerning the relationship of knowledgeable investors and market liquidity. The model recommended that mixtures of private informed investors are competing among each other purposefully.

This study considered the investors as heterogeneous group, means that the investors include both informed and less informed investors while it is the uniqueness of the present study. A few previous studies have been centered on the homogeneity of investors. Furthermore, the study has analyzed (Ins.Inves) with respect to (Inf.Asym) and ML in Pakistan.

The study captures multiple objectives that are, to analyze and note the effect of individual explanatory variables on the mentioned explained variables. In addition, to test the joint effect of the selected variables in the sampled sectors. Furthermore, to recognize the effect of time of one year on another year in the given sectors within the sample period. The empirical investigation is to address the following queries, that are, is institutional investors play their role in information signaling and ML? Does the relationship between ML and institutional investors is positive? Is firm ownership and ML relating to each other?

The prevailing study contributes from two angels; first, most of the previous studies considered the investors as homogenous, while this study has considered them as heterogeneous (both active and passive). In addition, the empirical study has explored the significant analysis of the mentioned independent variables and dependent variables. The concept of information asymmetry contains two agents i.e. informed agents (institutional investors) and uninformed agents (minor stockholders or individual shareholders) and have negatively affect the liquidity of the market, which concludes the adverse theory hypotheses. However, the study

attempted to explore the signals (positive and negative) transmitted to the markets and the reactions and decisions taken by the informed and uninformed agents. Furthermore, the study investigated the level of informational asymmetry for both institutional investors and individual investors in general in Pakistan Stock Exchange.



Theoretical Frame work

The structure of this paper are as follows; first phase of the paper consists of introduction and significant of the study, second, theoretical arguments and literature review. The third phase explains the data and methodology, measurement of variables and econometric techniques; fourth, empirical results and discussions, following phase, the conclusion & recommendations of the paper.

Literature Review

The study of Heflin et al. (2000) concluded that information asymmetry is significant for ML. The high-class disclosure of bookkeeping reports is well thought-out the sources to decrease the information asymmetry among the shareholders and it leads to increase the capabilities of equity shareholders to efficiently trades; when they required at a low and reasonable cost. The current study has examined 221 US firms for the time period from 1989 to 1998 and concluded that the high-quality disclosure can lead to increase the market liquidity with the help of increasing the quoted depth and lowering the spreads.

The study of Leuz and Verrecchia (2000) used 102 firms from the German market listed on DAX in 1998. The study had evaluated those firms who are reporting based on global accounting benchmark or Generally Accepted Accounting Principles (GAAP) in USA. The study concluded that the firm can take benefits from the lower spreads and high transaction volume so to increase the market liquidity. However, by exploring the firms of Over the Counter (OTC) securities, the study of Skinner (1993) concluded that the spreads of bid-ask might

not be changed around the earning announcements. The spreads might increase after the announcements which transmit large earnings surprises to the shareholders, so the process of the market the earning release differently.

The study of Gillan and Starks (2007) concluded that the Ins.Invs can prompt the supremacy alters which improves regulation of the firm management by the process of trading of shares. The study analyzed 23 counties conducted by Aggarwal et al. (2011) concluded that the high Ins.Invs can lead to increase the likelihood that the low-performance Chief Executive Officer (CEO) will be terminated and then the firm value will be higher. The institutional ownership can help in controlling the earning of the firm.

The association among the liquidity and institutional investors can be dependent on the development from the signaling theory. The institutional investors are capable to conduct the monitoring tasks on the firm's management and this will transmit the positive signal to the participants in the market. This will increase the trading volume due to investment in such firms by the investors. The following hypotheses are taken from the above discussion.

The study of Bartov et al. (1998) found that those organizations that have high institutional ownership will always prefer to re-buy more stocks in the firm. The study argued that the firms always prefer to repurchase over the dividend to decrease the firm tax burden, on the taxable stockholders of the firm. The reasoning of the study can lead to explain that institutes preferred the re-buy, while contra in case of adverse selection theory, these effects of taxes might not be more visible in the firm having high information asymmetry. The below hypothesis can be generated from the above discussions:

H_1: Institutional investors' ownership and market liquidity have positive relationship.
H2: Institutional investors have significant effect on information asymmetry.

Research Methodology

Data Specification

The data type of the present study is secondary and therefore it comes under the quantitative study. The calculations of the given variables have been made with the help of financial information reports of the 255 sample non-financial firms. The study has chosen foremost sectors among the given population sectors, that is, fuel & energy (18 firms), textile (154 firms), food (54 firms), and cement sector

(28firms) for the data analysis. The data of the selected variables for the study were collected through the official website of PSX, Business Recorder, Yahoo Finance and financial reports of the sample firms over a significant historical period of 2006-2015 because the given period has witnessed many critical incidents and ups & downs such as the takeover of General Pervaiz Musharraf, assassination of Benazir Bhutto, General Elections of 2008 in which Pakistan People's Party came into power, the world economic crises, General Elections of 2013 and the Government of Pakistan Muslim League.

Variables Specification

Institutional Investors

Institutional investor means when a firm invests in the shares of other firms in order to make earnings or to get management control. Similarly, in financial markets the most professional and up to date agents are the institutional investors who can influence liquidity. This alternative can be the finest term of the interests of the shareholders. On the contra, the Ins.Invs are the financiers who are preferably functioning to safeguard their self-interest while they do not care about their owners. The institutional investor is calculated as the shares held by the firm in other firms as compared to the total outstanding shares held by the firm (Boehmer and Kelley, 2009).

$$\text{INS.INV} = \frac{\text{Shares held with otherfirms}}{\text{Total No. of outstanding Shares}}$$

Stock Market Liquidity

The ML is the dependent variable of the study. As per the financial theory (Demsetz, 1968), the efficient market can be featured by persistently bid & ask prices followed by little spread while orders should be at small level. The present study has taken the proxy of liquidity that is the trading volume. The ML was measured by the volume of the closing index of KSE-100 index is taken from the PSX official website.

$$\textbf{SML} = \text{Volume index KSE 100 index}$$

It shows the daily closing traded volume that is, selling and buying stocks in the market. The more the daily traded volume of stocks the higher would be the stock market liquidity.

Information Asymmetry

The proxy to calculate the Inf.Asym in present study is the bid-ask spread and the concept of this measurement was taken from the theoretical models suggested by Amihud & Mendelson (1986); Kyle (1985); Glosten& Harris (1988).

The bid-ask spread: The concept of bid-ask spread given in the formula shows the problem of adverse selection. In the case of Inf.Asym, this spread price intensifies and ML lowers. The ML exists as the variance among the bid and asks price is weak. The current study utilized the quoted spread as well as effective relative spread (BASE) that measures theliquidity:

$$\text{Quoted Spreads} = \frac{\text{Ask}_t - \text{Bid}_t}{\frac{\text{Ask}_t + \text{Bid}_t}{2}}$$

Note that ask price is denoted with $Ask_t$and bid price is denoted withBid_t.

Quoted spread: Where "t" refers to the t-th trade of some stock on the day of trading. This spread implies that if an investor/trader purchases and instantaneously sells the same stock, he would pay the quoted $Ask_t$and get the quoted Bid_t.,in that way bearing a trading cost equivalent to the bid/ask spread.

$$\text{Effective Relative Spread} = 2\,\frac{\left|\frac{\text{Ask}_t + \text{Bid}_t}{2} - \text{P}_t\right|}{\frac{\text{Ask}_t + \text{Bid}_t}{2}}$$

Effective relative spread: it shows the differentiation between the two prices that is at which a dealer buys (sells) a security/investment and the price at which the dealer later sells (buys) it. In the computation, it is double the total value of the differentiation between the real trade price and the border line of the market quote that is between the quoted Bid_t and Ask_t

The following are the control variables of the study:
Size (SZ)

The firm size has been taken as the control variable in the present study. There are multiple proxies used for the measurement of firm size. The current study has taken the log of the total assets (current and noncurrent assets of the firm) as the alternate of firm size (Shah and Hijazi 2004).

SZ = log (Total Assets)

It shows the size of current and non-current assets of a firm in term of assets value. If the total assets of the firm are large the bigger would be the size of the firm.

Debt Support

The firm's Debt Support proportion has been taken as the control variable. Debt Support of the firm can be the proxy of debt to equity ratio or in other words the Debt Support is the percentage of debts and owners share that the firm used to finance their capital structure. The present study has used the ratio of total debts to total equity keeping in view the reality that most of the small firms in Pakistan are using short-term financing (Shah and Hijazi 2004).

$$DS = \frac{\text{Total Debts}}{\text{Total equity}}$$

Future Expansion (FE)

The study has chosen FE as third control variable. The expansion measurement and their effects on the liquidity were not clear from the previous studies.

$$FE = \ln\frac{\text{Current year assets}}{\text{Previous year assets}}$$

It shows the comparison, in terms of percentage/dollar change, in a firm current year and previous year assets which may be increased or decreased (Shah and Hijazi, 2004)

Model Specification

The empirical study conducted panel data analysis i.e. common effect model, FEM, and REM. The panel data is the type of data which is the combination of both time series (time-varying units with the single firm) and cross-sectional (multiple firms for a single time period). The panel is incorporated to address the problem heterogeneity in the data. The study tested the above models; firstly, compared common effect and fixed effect by applying the redundant test. The test suggested that the p-value of chi-square became significant so the FEM should be used. Secondly, for the decision, we have run a Hausman test compared between FE and RM models. The Hausman test finalized FE model because the chi-square p-value became below the 0.05 which is meaning that significant model is a fixed effect model.

Baseline Model

$$Y_{i,t} = \alpha + \beta_1 X_{i,t} + \mu_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$SML_{i,t} = \alpha + \beta INST_{i,t} + \beta SIZE_{i,t} + \beta DS_{i,t} + \beta FE_{i,t} + \varepsilon_{i,t} \ldots\ldots (2)$$

$$INF_{i,t} = \alpha + \beta INST_{i,t} + \beta SIZE_{i,t} + \beta DS_{i,t} + \beta FE_{i,t} + \varepsilon_{i,t} \ldots\ldots. (3)$$

Where i and t are the cross-section and time-series subscript of the panel sample respectively. While $\boldsymbol{\alpha}$ is a constant, $\boldsymbol{\beta}$ is K x 1 factor of the coefficient $X_{i,t}$ is a factor of Independent variables and $\mu_{i,t}$ is a residual term.

Fixed Effect Model (FEM)

The study has adopted the Fixed Effect (FEM) model from the panel firm information regression to check the effects of Ins.Invs on ML and information asymmetry in Pakistan Stock Exchange. The fixed effect model can be used whenever the researchers are interested to check the effects of variables over time. The FE model has also expressed the association among the predictor and outcome variables. The advantage of the FE model is that it removes the effect of time-varying features from independent variables, which can clear the effects on the dependent variables.

Random Effect Model (REM)

The prevailing study has used the REM to explore the effects of the predictor variables on the regressed variables or to check the relationship among the variables of the study. The random effect model is used to check the firm information observation randomly, so in this regard, the study had to maintain more observations as the fewer observations have not been helpful in finding the effects. The logic behind the use of RE is, unlike the FE, the volatility among the observations are assumed to the random and non-related with the independent variable. RE model assumes that the residual term is non-correlated with the independent variable.

Hausman Test

The current study has used both the fixed effect model and random effect model to check the effects of institutional investors on the market liquidity and information asymmetry. But the result of the only model was considered as most appropriate for the present study. In this regard, the prevailing study has used a

Hausman specification test to prefer among the FEM and REM. The hypotheses of the model are:

H_0: The Fixed effect is not fit
H_1: The Fixed effect is fit

Results and Discussions

Multicollinearity

The test of multicollinearity was used to know the inflation in the firm information. The Variance Inflation Factor (VIF) was used to know this problem which is often occurring in the panel firm information. The standard value of VIF test is 10. The value should be less than 10; otherwise, the inflation might lead to false results. The values in the above table for both market liquidity and information asymmetry are less than the standard value. So, there is no problem of multicollinearity.

Table 1: Variance Inflation Factor

Variable	Textile	Food	Fuel & Energy	Cement
Institutional Shareholding	1.002	1.013	1.059	1.013
Future Expansion	1.004	1.002	1.018	1.033
Size	1.092	1.016	1.155	0.166
Debt Support	1.089	1.007	1.096	1.17

Institutional Investors and Market Liquidity

The findings of the study in the above table show a negative but significant effect of Ins.Invs on ML in fuel & energy, textile, food, and cement sectors. The R-square value in the table for textile, food, fuel & energy, and cement sectors are .31, .33, .41 and 43. These values suggested that the institutional investors, firm size, leverage, and growth have explained 31 percent variance in textile, 33 in food, 41 in fuel & energy and 43 percent in cement sector in the market liquidity. The p-value of the model is .0000 which suggested that the selected model is significant for the data analysis.

Table 2: Market Liquidity

Market Liquidity	Textile	Food	Fuel & Energy	Cement
Institutional Investors	0.2900	0.3000	0.2200	0.1700
	(-2.45)	(-3.91)	(-4.55)	(-2.23)
Size	-0.0500	-0.1560	0.2300	-0.0240
	(-2.30)	(-2.20)	-0.1000	(-3.87)
Debt Support	-0.0030	0.0290	-0.1610	-0.4040
	(-1.78)	-0.2500	(-2.01)	(-18.01)
Future Expansion	-0.0610	0.0820	-0.2100	-0.3900
	(-1.11)	-2.0000	(-1.65)	(-2.22)
P-value	0.0000*	0.0000*	0.0000*	0.0000*
R-square	0.3100	0.3300	0.4100	0.4300
Hausman Test (P-value)	0.0040	0.0490	0.0070	0.0010

Note: t-statistics are reported in parenthesis, while *Imply significant (p-value) < 5%

According to Bushee and Goodman (2007), change in institutional investors' ownership and buy and sell on private information are dependable. This aggravates Inf.Asym, increasing the adverse selection expenditure and decreasing ML (Ajinkya et al., 2005). In this perspective, Glosten and Milgrom (1985) consider that market players confront adverse selection expenditure, because of Ins.Invs, as their share of trade is greater, and the immediate supply service compels them to handle his investments at a lofty price. Several empirical studies confirm adverse selection hypothesis. The study of Sharma (2005) shows that Ins.Invs' share capital is insignificantly related to ML. Aslan et al. (2007) confirms that a firm with higher Ins.Invs poses higher chances well-versed buying & selling. Boehmer and Kelley (2009) evidenced that Ins.Invs better of the informational competence of prices. The above table shows that firm size has significant effects on the textile, food and cement sectors while it has insignificant in the fuel & energy sector. The Debt Support has insignificant effect on the textile and food sectors and has significant effect on the cement and fuel & energy sectors. The growth has significant effect on the food and cement sectors while fuel & energy and textile sectors. The ascendancy theoretical framework considers shareholding activism as a substitute checking device to lessen agency costs and conflicts of interests among shareholders. Ins.Invs' behavior (passive or active) is portfolio size, investment horizon, nature of their relationships with dependent for controlling governance policy of firms (Bushee and Noe, 2000; Chen et al. 2007).

Institutional Investors and Information Asymmetry

The findings of the study in the above table show that the institutional investors have a negative but major effect on the inf.Asym in textile, food, fuel & energy and cement sectors. The R-square value in the table for textile, food, fuel & energy,

and cement sectors are .23, .29, .25 and 26. These values suggested that the institutional investors, firm size, leverage, and growth have explained 23 percent variance in textile, 29 in food, 25 in fuel & energy, and 26 percent in cement sector in the information asymmetry. The p-value of the model is .0000 which suggested that the selected model is significant for the data analysis.

Table 3: Information Asymmetry

Information Asymmetry	Textile	Food	Fuel & Energy	Cement
Institutional Investors	0.1000	0.1900	0.1700	0.1300
	(-2.66)	(-3.01)	(-2.11)	(-2.09)
Size	-0.2100	-0.2520	0.3100	-0.2140
	(-1.31)	(-2.99)	-5.6700	(-2.65)
Debt Support	-0.3130	0.0900	-0.2710	-0.3510
	(-2.38)	-0.6700	(-2.88)	(-4.71)
Future expansion	-0.1900	0.2100	-0.2200	-0.2900
	(-1.78)	-2.3100	(-2.13)	(-2.34)
P-value	0.0000*	0.0000*	0.0000*	0.0000*
R-square	0.2300	0.2900	0.2500	0.2600
Hausman Test (P-value)	0.0320	0.0460	0.0031	0.0000

Note: t-statistics are reported in parenthesis, while *Imply significant (p-value) < 5%

This result above is in contradiction to the adverse selection hypothesis that considers Ins.Invs as learned one aggravating Inf.Asym in the market place whereas this relationship is in line with findings of Boehmer and Kelley (2009) that consider firm size effecting significantly on the food, fuel & energy, and cement sector share price while it is insignificant in the textile sector. The Debt Support has insignificant effects on the food and has significant effects on the textile, fuel & energy, and cement sectors. The growth has significant effects on the food and cement sectors while insignificant effect in fuel & energy, and textile sectors.

Conclusion

The endeavor of the empirical investigation is analyzing Ins.Invs with respect to ML and Inf.Asym for the non-financial sectors of Pakistan. The study broadly investigated six factors of each non-financial sector which is registered at the Pakistan Stock Exchange. We used pooled ordinary least square techniques over the period of 2006-2015, balanced panel data to analyze the relationship among Ins.Invs and ML and information asymmetry along with control variables.

The relationship among the institutional investors and market liquidity is positive, which is reliable as per the signaling theory and trading hypotheses. The institutional investors are helping in a heavy transaction that they are doing for to manage their portfolios which ultimately affect the liquidity. The findings suggested that institutional shareholding, have a significant effect on market liquidity and Inf.Asym the institutional investors affect their capabilities to pressurize the firm's management to take those decisions, which can give benefits to the firm's shareholders. In the market, institutional investors can be considered as more informed and can be treated as more influential in comparison of individual investors. The Ins.Invs has special features as compared to the individual to affect the decisions of the executives. Besides, some of the theoretical studies have suggested that the information asymmetry can strongly influence the market liquidity. The studies of Admatiand Pfleiderer (1988) and Holden and Subrahmanyam (1992) have introduced models regarding the influence of information asymmetry and liquidity. Due to information with the agents, they compete aggressively with their competitors in the market. The model suggested that there are a variety of private informed investors who are competing among each other strategically. Since these institutional investors compete aggressively, the information is expressed in the prices quickly. Therefore, informed institutional investors can speed up the revelation process of information and it leads to decrease the market liquidity which is related to the information asymmetry.

The empirical investigation additionally declares the importance and policy implication that the markets give claims on the assets i.e. bonds, equity and demand deposits, which the market investors can easily trade, the market support the long-term investment in the long-term production process. The limitation of this study is that it is focused on the non-financial sectors and not on financial sectors of PSX. The study centered at specific sectors and the findings cannot be considered for the excluded sectors. Similarly, this study is limited to four sectors out of total thirteen sectors so one can use the other uncovered sectors in order to get more generalizability.

References

Admati, A. R., &Pfleiderer, P. (1988). A theory of intraday patterns: Volume and price variability. *The Review of Financial Studies, 1*(1), 3-40.

Aggarwal, R., Erel, I., Ferreira, M., & Matos, P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics, 100*(1), 154-181.

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of accounting research, 43*(3), 343-376.

Amihud, Y. (2002). Illiquidity and stock return: cross-section and time-series effects. *Journal of financial markets, 5*(1), 31-56.

Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid-ask spread. *Journal of financial Economics, 17*(2), 223-249.

Aslan, H., Easley, D., Hvidkjaer, S., &O'hara, M. (2011). The characteristics of informed trading: Implications for asset pricing. *Journal of Empirical Finance, 18*(5), 782-801.

Bartov, E., Krinsky, I., & Lee, J. (1998). Evidence on how companies choose between dividends and open-market stock repurchases. *Journal of Applied Corporate Finance, 11*(1), 89-96.

Black, F. (1976). The dividend puzzles. *Journal of portfolio management, 2*(2), 5-8.

Boehmer, E., & Kelley, E. K. (2009). Institutional investors and the informational efficiency of prices. *The Review of Financial Studies, 22*(9), 3563-3594.

Bushee, B. J., & Goodman, T. H. (2007). Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research, 45*(2), 289-321.

Bushee, B. J., & Noe, C. F. (2000). Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of accounting research, 38*, 171-202.

Chen, X., Harford, J., & Li, K. (2007). Monitoring: Which institutions matter? *Journal of financial Economics, 86*(2), 279-305.

Demsetz, H. (1968). The cost of transacting. *The quarterly journal of economics, 82(*1), 33-53.

Gaspar, J. M., Massa, M., Matos, P., Patgiri, R., & Rehman, Z. (2012). Payout policy choices and shareholder investment horizons. *Review of Finance, 17*(1), 261-320.

Gillan, S. L., & Starks, L. T. (2007). The evolution of shareholder activism in the United States. *Journal of Applied Corporate Finance, 19*(1), 55-73.

Glosten, L. R., & Harris, L. E. (1988). Estimating the components of the bid/ask spread. *Journal of financial Economics, 21*(1), 123-142.

Glosten, L. R., & Milgrom, P. R. (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of financial economics, 14*(1), 71-100.

Heflin, F., & Shaw, K. W. (2000). Blockholder ownership and market liquidity. *Journal of Financial and Quantitative Analysis, 35*(4), 621-633.

Holden, C. W., & Subrahmanyam, A. (1992). Long-lived private information and imperfect competition. *The Journal of Finance, 47*(1), 247-270.

Kyle, A. S. (1985). Continuous auctions and insider trading. Econometrica: *Journal of the Econometric Society*, 1315-1335.

Leuz, C., &Verrecchia, R. E. (2000). The economic consequences of increased disclosure. *Journal of accounting research*, 91-124.

Levine, R. (1999). Financial development and economic growth: views and agenda. The World Bank.

Shah, A., Hijazi, T., & Javed, A. Y. (2004). The determinants of capital structure of stock exchange-listed non-financial firms in Pakistan [with comments]. *The Pakistan Development Review*, 605-618.

Sharma, L. (2005). Ownership structure and stock liquidity, evidence from Indian market. Document de travail, TA Pai Management Institute, Manipal.

Skinner, D. J. (1993). Bid-ask spreads around earnings announcements: Evidence from the Nasdaq National Market System. Available at SSRN 2143649.