Article can be accessed online at http://www.publishingindia.com

CORPORATE GOVERNANCE AND STOCK MARKET LIQUIDITY

Manjit Kaur Sidhu*

Abstract *Corporate governance has an impact on both quantity and quality of corporate information disclosure which affects the level of information asymmetry and thus impacts the changes in market liquidity of stock. This article attempts to discern the relationship between corporate governance and the stock market liquidity of Indian manufacturing companies included in the S&P BSE 100 Index during the period 2009-2012 by invoking pooled regression model. The empirical results support corporate governance implications of stock market liquidity as measured by Amivest measure (1985), that is, better governed companies has higher liquidity. The results of the present study are in support of arguments made by Chung, Elder, and Kim (2010), i.e., firms may improve stock market liquidity by adopting corporate governance practices that mitigate informational asymmetries.*

Keyword: *Corporate Governance, Stock Market Liquidity, S&P BSE 100 Index*

INTRODUCTION

Financial transparency and disclosure are very important pillars of good corporate governance. Poor financial transparency increases the agency cost faced by the shareholders as the managers of such firms are most likely to exploit their information advantage for their own personal interests. Better transparency and disclosure practices can assist shareholders gain a better understanding of firm's management practices, thereby helping decrease the information asymmetry faced by investors. When investors are inadequately protected, like in emerging markets, corporate governance replaces investor's protection. In fact good corporate governance scheme reduces the expropriation risk of minority shareholders and protects their financial interests (Shleifer & Vishny, 1997).

Liquidity of a stock is defined as the ability to trade large volumes with minimal price impact (transaction price), cost and delay. Ahn, Cai, and Yang (2012) empirically concluded that there is not one universally accepted proxy for liquidity. Liquidity has been calculated using common proxies like bid-ask spread (Chen, Chung, Lee, and Liao, 2007; Chung *et al*., 2010), trading volume and turnover (Krishna & Mishra, 2012; Malhotra, Then, & Gopalaswamy, 2012).

Adopting corporate governance standards helps in mitigating information asymmetries which alleviates information based trading and improve stock market liquidity (Chung *et al*., 2010). There are several studies on the effects of corporate governance on the equity prices but to the best of my knowledge, few studies have been undertaken on the liquidity cost of poor corporate governance. Some studies shows that corporate governance has indirect effects on the stock liquidity i.e. corporate governance reduces information symmetry problems which then improve stock liquidity (Chen *et al*., 2007) while some studies have explored the direct effects of corporate governance on stock liquidity (Loukel and Yousfi, 2010).

More recently Chen *et al*. (2007) and Chung *et al*. (2010), focused on corporate governance as a means to enhance stock liquidity by reducing information asymmetry problem. However, these studies were carried out in the developed markets where liquidity is high, investors are well protected and ownership is widely dispersed. In emerging countries such as India, only few people have addressed this issue (Prasanna & Menon, 2012).

REVIEW OF LITERATURE

Corporate governance practices reduce information asymmetry problems which have a positive effect on liquidity (Loukil & Yousfi, 2010). Chung *et al*. (2010) established that firms with better corporate governance have narrower spreads, higher market quality index, smaller price impact of trades and lower probability of information based trading. Heflin, Shaw, and Wild (2002) found that high-quality disclosures improve market liquidity by reducing information asymmetries. Lang, Lins, and Maffett (2012) documented the positive significant impact of transparency on liquidity and firm valuation. Black, Love, and Rachinsky.

* Research Scholar, University Business School, Panjab University, Chandigarh, India. Email: kaur_manjitsidhu87@yahoo.com.

(2006) suggested a strong positive relationship between corporate governance and firm valuation for Russian firms from 1999 to 2005.

Kanagaretnam, Lobo, and Whalen (2007) advocated that board independence reduces asymmetric information and thus improves liquidity. Chen *et al*. (2007) opined that corporate disclosure reduces information asymmetry risk and thus improves liquidity and also decreases capital cost. Brockman and Chung (2003) investigated the relation between investor protection and firm liquidity, positing an inverse relation between the quality of investor protection and the cost of liquidity. Chavez and Silva (2009) established that liquidity and firm value are enhanced for companies who choose to list in these special governance segments. Yun (2009) concluded that firms with strong internal governance have high liquidity and cash relative to line of credit relative to firms with weak internal governance. In an empirical country study of China, Tang and Wang (2011) examined the cross-sectional relation between corporate governance and firm liquidity and found strong evidence of the positive governance-liquidity relationship.

Wu and Liu (2009) reported that liquidity has negative effect on firm value of the firms with low level of information transparency. Jain, Kim, and Rezaee (2008) examined the impact of Sarbanes Oxley Act on liquidity and found that liquidity is positively related to the quality of financial reports. Brockman and Chins (2003) advocated that less protective environment leads to wider bid-ask spread and thinner depth because they fail to minimize information asymmetries.

Previous researches reveal that corporate governance has an impact on both the quantity and quality of corporate information disclosure (Ajinkya, Bhojraj, & Sengupta, 2005). These disclosures in turn affect the level of information asymmetry suggesting that corporate governance quality should impact changes in market liquidity of stock. The present study examined the effect of corporate governance on liquidity using corporate governance attributes as an independent variable that are likely to affect the transparency. Based on what precedes, the following hypothesis can be formulated:

H1: There is significant relationship between the corporate governance mechanisms and stock market liquidity practices in a firm.

NEED OF THE STUDY

There are few studies investigating the impact of corporate governance on stock market liquidity especially in emerging markets such as India. The present study on stock market liquidity will, thus, fill the research gap. This study focuses on differences in liquidity due to internal corporate governance mechanism (board characteristics, audit committee functionality etc.).

OBJECTIVE OF THE STUDY

1. To examine the stock market liquidity in the sample companies
2. To analyse the select corporate governance mechanism for sample companies.
3. To study the relationship between select corporate governance mechanism and stock market liquidity of the sample companies.

RESEARCH DESIGN

Sample Selection and Data Sources

The sample included a subset of companies comprising the S&P BSE 100 Index as of 31 March 2012 for three financial years from 2009 to 2012. First, all the non-manufacturing companies were excluded from sample. Second, all banking and financial companies were excluded from the sample, since they are governed by the Reserve Bank of India Act, 1934 and the Banking Regulation Act,1949. Third,all the public sector companies were kept out, as their performance is influenced by a large number of social obligations. Fourth, companies with the financial year, other than the fiscal year (1 April-31 March) were deleted as it makes year-on-year comparison difficult. Finally, companies for which there were insufficient or missing data over the study period were dropped from the sample. These sample selection criteria resulted ina final sample size of 43 companies accounting for 129 company-year observations. The corporate governance reports of sample Indian manufacturing companies were obtained from PROWESS database and official website of companies to hand compile details of board and audit committee composition. The cross sectional daily data of shares traded and absolute returns were used in this study.

Variable Selection and Description

The variables used to investigate the corporate governance and stock market liquidity relationship have been discussed in the following.

Liquidity (Dependent variable)

1. **Amivest measure (AMI):** It was introduced by Copper, Groth, and Avera (1985), that compares daily returns with daily volume measured in number of shares. The higher the volume, the more price movement can be absorbed. Therefore, high liquidity ratios denote high liquidity.

$$LR_i^{k.m} = \frac{\sum_{i_k}^{i_m} V_{i,t}}{\sum_{i_k}^{i_m} |R_{i,t}|}$$

where,

$V_{i,t}$ = The trading volume for stock *i* on day *t*

$|R_{i,t}|$ = The absolute return for stock i on day *t*

Corporate Governance (Independent variables)

Board Characteristics

1. **Board Size (BSIZ):** It denoted the total number of directors on board. The cessation of any director during the year and non-appoint against his position has been considered as vacant position. Thus, a director holding position for a complete year has been added to the number (Kanagaretnam *et al*., 2007; Tang & Wang, 2008; Loukil & Yousfi, 2010).
2. **Board Independence (BIND):** Board independence is percentage of independent directors in the board (Kanagaretnam *et al*., 2007; Loukil & Yousfi, 2010; Fang, 2012; Prasanna & Menon, 2012).
3. **CEO duality (CDUA):** CDUA equals to one if CEO is chairman of board and zero otherwise (Tang & Wang, 2008; Loukil & Yousfi, 2010; Fang, 2012; Prasanna & Menon, 2012).
4. **Multiple Directorships (MDIR):** It equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise.
5. **Board Diligence (BDIL):** It shows the percentage of board meetings attended by the independent directors (Prasanna & Menon, 2012).
6. **Number of Board Committees (BCOM):** It is number of committees formed by board for matters relating to audit, nomination, compensation, investor grievances ethics, compliances, corporate sustainability report etc.

Audit Committee Functionality:

1. **Audit Committee Size (ASIZ):** It denotes total number of directors on the audit committee (Prasanna & Menon, 2012).
2. **Audit Committee Independence (AIN):** It is percentage of independent directors sitting on the audit committee (Kanagaretnam *et al*., 2007; Chung *et al*., 2010; Fang, 2012; Prasanna & Menon, 2012).
3. **Audit Committee Meetings (AMET):** It shows number of times the audit committee meetings have been held (Kanagaretnam *et al*., 2007; Prasanna & Menon, 2012).

Control Variables

1. **Age (AGE):** The older company could differ from younger companies in governance practices and liquidity. It is measured as natural logarithm of the number of years for which the company has been in existence since incorporation (Wu & Liu, 2009; Loukil & Yousfi, 2010).
2. **Firm size (SIZ):** Natural logarithm of total sales have been taken to control for the size of sample companies (Sharma, 2005; Chen *et al*., 2007; Kanagaretnam *et al*., 2007; Wu & Liu, 2009; Loukil & Yousfi, 2010; Li et al., 2012).

Table 1: Summary of Key Variables

S. No.	Acronym	Variable	Definition
1.	AMI	Amivest Measure	It compares daily returns with daily volume measured in number of shares. $LR_i^{k.m} = \frac{\sum_{t_k}^{m} V_{i,t}}{\sum_{t_k}^{m} \lvert R_{i,t} \rvert}$ where, $V_{i,t}$ = The trading volume for stock *i* on day *t* $\lvert R_{i,t} \rvert$ = The absolute return for stock i on day *t*
2.	BSIZ	Board Size	Total number of directors on the board
3.	BIND	Board Independence	Board independence is percentage of independent directors on the board
4.	CDUA	CEO Duality	Equals one if CEO is chairman of board and zero otherwise
5.	MDIR	Multiple Directorships	Equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise.
6.	BDIL	Board Diligence	Percentage of board meetings attended by the independent directors
7.	BCOM	Board Committees	Number of committees formed by the board.
8.	ASIZ	Audit Committee Size	Total number of directors on the board of audit committee
9.	AIND	Audit Committee Independence	Percentage of independent directors sitting on the audit committee
10.	AMET	Audit Committee Meetings	Frequency of audit committee meetings.
11.	AGE	Company'sAge	Natural logarithm of the number of years for which the company has been in existence since incorporation
12.	SIZ	Company Size	Natural logarithm of firm's total sales

Source: Researcher's own compilation

Data Analyses

The software packages, SPSS (version 20) and STATA (version 12) were utilised to carry out the data analysis in the present study. Pooled OLS regression model is employed on the following regression model to test the relations of corporate governance variables with stock market liquidity:

$$AMI_{it} = \beta_0 + \beta_1 BSIZ_{it} + \beta_2 BIND_{it} + \beta_3 CDUA_{it} + \beta_4 MDIR_{it} + \beta_5 BDIL_{it} + \beta_6 BCOM_{it} + \beta_7 ASIZ_{it} + \beta_8 AIND_{it} + \beta_9 AMET_{it} + \beta_{10} AGE_{it} + \beta_{11} SIZ_{it} + \varepsilon_{it} \quad (1)$$

where

AMI = Stock market liquidity as proxied by Amivest measure for company *i* for year *t*

BSIZ = Total number of directors on the board

BIND = Board independence is percentage of independent directors on the board

CDUA = one if CEO is chairman of board and zero otherwise

MDIR = one if board has at least 1 independent director with 3 or more directorships and zero otherwise.

BDIL = Percentage of board meetings attended by the independent directors

BCOM = Number of committees formed by the board

ASIZ = Total number of directors on the board of audit committee

AIND = Percentage of independent directors sitting on the audit committee

AMET = Frequency of the audit Committee meetings

AGE = Natural logarithm of the number of years for which the company has been in existence since incorporation

SIZ = Natural logarithm of firm's sales

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 provides the descriptive statistics for the variables used in the study. The examination of the results in Panel A shows that BSIZ varied significantly, ranging from 6 to 20 directors with a mean (median) of 11.54 (12). Percentage of independent directors in the board is between 15 and 78 with an average not exceeding 51.92 percent. Referring to the board characteristics, the study revealed that independent directors attended about 79 percent of the board meetings with BDIL minimum and maximum of 33 percent and 100 percent respectively. Focussing on number of board committees formed by the sample companies, BCOM ranges from 2 to 12 with a mean of almost 5 committees. Further, all the sample companies have formed an audit committee as mandated by the listing agreement with ASIZ ranges from 3 to 6 with a mean (median) value of 3.99 (4), whereas AIND and AMET account for 40 percent and 4 respectively as minimum value and maximum score as 100 percent and 14 respectively with mean (median) value of 88.24 (100) percent and 5.78 (5) respectively. The minimum value of 3 in case of ASIZ reveals that sample companies are fulfilling the minimum requirement of having at least three members in the audit committee. The results indicate that the sample companies are complying with the requirement of Revised Clause 49 that the audit committee should meet at least four times a financial year,. The statistics also shows that about 67 percent of the companies maintain a division between the roles of the CEO and chairperson (CDUA). Further investigations indicate that majority (91.5%) of sample companies have busy directors on the board with multiple directorships.

In relation to the stock market liquidity observed across the sample companies, Panel B of the table indicates that the mean (median) value of AMI is 12.90 (12.79). Further investigations reveals that stock market liquidity as proxied by AMI covers a wide range suggesting that sample covers companies having low as well as high stock market liquidity.

The average company in the sample is nearly 4 years old, suggesting that the sample companies are relatively young. Average SIZ of sample companies is 11.67 with maximum and minimum values of 9 and 15 respectively.

Table 2: Descriptive Statistics

Continuous Variables	Symbol used	Observations	Mean	Standard Deviation	Minimum	Median	Maximum
Panel A: Governance Variables							
Board Size	BSIZ	129	11.54	2.897	6	12.00	20
Board Independence	BIND	129	51.92	9.145	15	50	78
Board Diligence	BDIL	129	79.01	12.851	33	80.56	100
Board Committees	BCOM	129	4.69	2.113	2	4	12

Continuous Variables	**Symbol used**	**Observations**	**Mean**	**Standard Deviation**	**Minimum**	**Median**	**Maximum**
Audit Committee Size	ASIZ	129	3.99	0.914	3	4	6
Audit Committee Independence	AIND	129	88.24	14.720	40	100	100
Audit Committee Meetings	AMET	129	5.78	1.817	4	5	14
Dichotomous Variables	**Frequency of 1's**				**Frequency of 0's**		
	Symbol used	**Frequency**		**Percent**	**Frequency**	**Percent**	
CEO Duality	CDUA	43		33.3%	86	66.7%	
Multiple Directorship	MDIR	118		91.5%	11	8.5%	
Panel B: Proxy for Stock Market Liquidity							
Continuous Variables	**Symbol Used**	**Observations**	**Mean**	**Standard Deviation**	**Minimum**	**Median**	**Maximum**
Amivest Measure	AMI	129	12.90	2.532	8	12.79	19
Panel C:Control Variables							
Continuous Variables	**Symbol Used**	**Observations**	**Mean**	**Standard Deviation**	**Minimum**	**Median**	**Maximum**
Age	AGE	129	3.62	0.689	1	3.81	5
Company Size	SIZ	129	11.67	1.379	9	11.43	15

Note: Results are obtained using SPSS 16.0

Where, *AMI*, proxy for stock market liquidity; *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee;*AMET* frequency of audit committee meetings;*AGE* is natural logarithm of years for which the company has been in existence since its incorporation; *SIZ* is natural logarithm of total sales

Correlation

The Pearson correlation coefficient between AMI and MDIR (r= -0.185, p< 5) is statistically significant at five percent level indicating that busy directors have a negative influence on stock market liquidity of the firm. Further investigations report a negative significant association between AMI and BDIL(r= -0.150, p< 10). AGE (r= 0.238) and SIZ (r= 0.157) have a significant association with AMI at one and ten percent level respectively advocating that relatively older and larger firms have high stock market liquidity. The correlation coefficient of CDUA (r= 0.061) report a significant association with AMI at five percent level. BIND, AIN, and AMET are negatively associated with AMI, although the correlation is not significant, however, BSIZ, BCOM, and ASIZ report an insignificant positive association with AMI.

It is evident from the correlation coefficients in Table 3that there is no high correlation among the independent variables. Larger board size is correlated with lower board independence, CEO duality and busy directors at five percent level of significance. The companies with larger board size relatively have more number of committees, larger and independent audit committee and hold frequent audit committee meetings. Further, investigation reveals that more busy the directors are, lesser is the participation of independent directors in attending those meetings. Overall, the correlations indicate that multicollinearity is unlikely to threaten the reliability of the results.

Table 3: Correlation Matrix

Variables	BSIZ	BIND	CDUA	MDIR	BDIL	BCOM	ASIZ	AIND	AMET	AGE	SIZE	AMI
BSIZ	1											
BIND	-0.181**	1										
CDUA	0.152*	-0.257***	1									
MDIR	0.221**	0.094	-0.373***	1								
BDIL	-0.061	0.102	0.200**	-0.232***	1							
BCOM	0.249***	-0.097	-0.076	0.166*	0.147*	1						
ASIZ	0.241***	-0.033	0.042	0.180**	-0.132	0.043	1					
AIND	0.162*	0.235***	-0.029	0.247***	-0.025	0.104	-0.316***	1				
AMET	0.203**	-0.217**	0.070	0.146*	0.137	0.427***	0.037	0.127	1			
AGE	-0.080	-0.059	-0.007	0.030	-0.013	0.177**	0.107	-0.140	0.380***	1		
SIZ	0.232***	-0.267***	0.124	0.097	0.245***	0.454***	-0.053	0.059	0.439***	0.200**	1	
AMI	0.052	-0.038	0.215**	-0.185**	-0.150*	0.058	0.012	-0.031	-0.046	0.238***	0.157*	1

Note: Results are obtained using SPSS 16.0
*** Correlation is significant at the 0.01 level (two-tailed).
** Correlation is significant at the 0.05 level (two-tailed).
* Correlation is significant at the 0.1 level (two-tailed).

Where, *AMI*, proxy for stock market liquidity; *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee; *AMET* frequency of audit committee meetings; *AGE* is natural logarithm of years for which the company has been in existence since its incorporation; *SIZ* is natural logarithm of total sales

Paired t-Test Results

The analysis of the data using paired t-test reveals that BSIZ, CDUA, MDIR, BDIL, AIND, and AMET have not shown significant change during the study period. The results of the paired t-test for BIND revealed that there is a significant change in the proportion of independent directors on the board from FY 2010 vis-à-vis FY 2012 which may be due to the revamping of the board structure of the companies to include more independent directors after the financial scam of Satyam. The value of *t*-statistic for BCOM (t= -2.048, p< 0.05)is significant at five percent level implying that the sample companies have formed more board committees than is compulsorily required. There is a statistically significant change in ASIZ at one percent level. The value of *t*-statistic for AMI (t= -2.320, p< 0.05) is significant at five percent level.

Table 4: Results of Paired *t*-Test (FY 2010 vis-à-vis FY 2012)

Variables	Mean	Standard Deviation	*t*-statistic	*p*-value
AMI	-0.687	1.943	-2.320**	0.025
BSIZ	-0.140	1.505	-0.608	0.547
BIND	-2.195	8.095	-1.778*	0.083
CDUA	0.047	0.375	0.813	0.421
MDIR	-0.023	0.266	-0.573	0.570
BDIL	0.192	12.856	0.098	0.923
BCOM	-0.256	0.819	-2.048**	0.047
ASIZ	-0.279	0.504	-3.634***	0.001
AIND	2.868	14.495	1.298	0.202
AMET	0.256	1.677	1.000	0.323

*** indicates level of significance at 1 percent. The test of significance is two-tailed.
** indicates level of significance at 5 percent. The test of significance is two-tailed.
* indicates level of significance at 10 percent. The test of significance is two-tailed.

The results are obtained using SPSS 16.0

Where, *AMI*, proxy for stock market liquidity; *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee; *AMET* frequency of audit committee meetings

Multivariate Results

The results of pooled OLS regression analysis to determine the effect of corporate governance practices on stock market liquidity are presented in Table V. The results report that AMI have a positive relationship with *CDUA* with a coefficient of 1.094 significant at five percent level. BSIZ, BIND, BCOM, and AIN were found to be positively related to AMI but the relationship was not statistically significant. The positive sign of the coefficient of AGE as well as SIZ is consistent with the expectation that the older and larger firms have higher stock market liquidity. However, AMI reports a negative insignificant relation with ASIZ. For AMI, a significant negative coefficient was identified for MDIR (β= -1.958; $p< 0.05$), suggesting that busy directors have negative influence on the stock market liquidity of the firm. Negative and significant coefficients were reported for BDIL (β= -0.056; $p< 0.01$).

The R^2 for the model is 25 percent with a significant Wald statistics ($p< 0.000$) indicating the model fitness. The results support the evidence put forth by Chung *et al*. (2010) that the corporate governance helps in enhancing the stock market liquidity of the firms.

Table 5: Regression Results of Corporate Governance on Stock Market Liquidity

Explanatory Variables	Model (AMI)
Intercept	8.679*** (0.008)
BSIZ	0.053 (0.521)
BIND	0.030 (0.260)
CDUA	1.094** (0.034)
MDIR	-1.958** (0.030)
BDIL	-0.056*** (0.002)
BCOM	0.098 (0.402)
ASIZ	-0.025 (0.926)
AIND	0.005 (0.758)
AMET	-0.322** (0.026)
AGE	1.042*** (0.002)
SIZE	0.446** (0.018)
No. of Observations	129
Overall R^2	0.25%
Wald Statistics (F)	3.468
Prob>chi square	0.000

Note: Results are obtained using STATA 12.0
Dependent variable is stock market liquidity as captured by Amivest measure.
The p-values are shown in parentheses.
*** indicates level of significance at 1 percent. The test of significance is two tailed.
** indicates level of significance at 5 percent. The test of significance is two tailed.
* indicates level of significance at 10 percent. The test of significance is two tailed.

Where, *AMI*, proxy for stock market liquidity; *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee; *AMET* frequency of the audit committee meetings; *AGE* is natural logarithm of years for which the company has been in existence since its incorporation; *SIZ* is natural logarithm of total sales

Regression Diagnostics

Multicollinearity check

As can be inferred from Table 3, although there are some significant correlations among the independent variables, they are not so high to indicate a problem of collinearity. As can be inferred from Table 6, multicollinearity was not a serious problem for any of the regression models in the study as the coefficients of independent variables were quite below the rule of thumb, that is, if the VIF of a variable exceeds 10, which will happen if R^2 exceeds 0.90, that variable is said be highly collinear (Gujarati, 2003).

Table 6: Variance Inflation Factors

Explanatory Variables	Tolerance	VIF
BSIZ	0.727	1.376
BIND	0.717	1.394
CDUA	0.707	1.414
MDIR	0.662	1.511
BDIL	0.775	1.291
BCOM	0.682	1.466
ASIZ	0.719	1.391
AIND	0.661	1.512
AMET	0.612	1.634

Explanatory Variables	Tolerance	VIF
AGE	0.774	1.292
SIZ	0.626	1.597

Note: Results are obtained using STATA 12.0

Where, *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee; *AMET* frequency of the audit committee meetings; *AGE* is natural logarithm of years for which the company has been in existence since its incorporation; *SIZ* is natural logarithm of total sales

Heteroskedasticity

The heteroskedasticity is more common with cross-sectional data and leads to inefficient estimates of the coefficients. As can be inferred from the insignificant *p*-value reported in Table 7, heteroskedasticity is absent in the model employed in the present study.

Table 7: Breusch-Pagan Test for Heteroskedasticity

Dependent Variable	Chi-square value	*p*-value
AMI	0.01	0.9060

Where, *AMI*, proxy for stock market liquidity

Auto Correlation

Durbin-Watson test checks for serial correlation between errors and assumes that independent errors are tenable. Autocorrelation is not a problem for the current study as value is closer to 2 (2.068).

Robust Check

For controlling the presence of outliers in the results of the study, an alternative methodology that is robust regression has been invoked. Table 8 presents the results of robust standard error depicting that there is no problem of outliers in the data and results are as efficient as the results of linear regression.

Table 8: Robust Regression

Explanatory Variables	Model (AMI)
Intercept	8.679*** (0.010)
BSIZ	0.053 (0.581)
BIND	0.030 (0.201)
CDUA	1.094* (0.073)
MDIR	-1.958** (0.012)
BDIL	-0.056*** (0.005)
BCOM	0.098 (0.373)
ASIZ	-0.025 (0.935)
AIND	0.005 (0.75)
AMET	-0.322** (0.021)
AGE	1.042*** (0.002)
SIZE	0.446*** (0.007)
No. of Observations	129
Overall R^2	0.25%
Wald Statistics (F)	5.70
Prob>chi square	0.000

Note: Results are obtained using STATA 12.0
Dependent variable is stock market liquidity as captured by Amivest measure.
The p-values are shown in parentheses.
*** indicates level of significance at 1 percent. The test of significance is two tailed.
** indicates level of significance at 5 percent. The test of significance is two tailed.
* indicates level of significance at 10 percent. The test of significance is two tailed.

Where, *AMI*, proxy for stock market liquidity; *BSIZ* is total number of directors on board; *BIND* is percentage of independent directors on the board; *CDUA* equals one if CEO is chairman of board and zero otherwise; *MDIR* equals one if board has at least 1 independent director with 3 or more directorships and zero otherwise; *BDIL* is percentage of board meetings attended by the independent directors; *BCOM* is number of committees formed by board; *ASIZ* is total number of directors on the audit committee; *AIN* is percentage of independent directors sitting on the audit committee; *AMET* frequency of the audit committee meetings; *AGE* is natural logarithm of years for which the company has been in existence since its incorporation; *SIZ* is natural logarithm of total sales

CONCLUSION AND IMPLICATIONS

This paper hypothesizes that corporate governance mechanism affect stock market liquidity. To provide supporting evidence, present study employed pooled OLS regression model. Companies with good corporate

governance practices enhance stock market liquidity as it improves financial transparency which results in reduced information asymmetry. Empirical results are consistent with the hypothesis and suggest that companies with better corporate governance have greater stock market liquidity as measured by Amivest measure (1985). Age as well as size is positively related with liquidity indicating that older and larger firms have higher stock market liquidity. At the five percent level, CEO duality is positively related with liquidity; however, multiple directorships is negatively related with liquidity advocating that busy directors have negative influence on the liquidity of the firms. Frequent audit committee meetings and percentage of board meetings attended by independent directors are negatively related with liquidity.

Research findings shed light on the important role of corporate governance in enhancing stock market liquidity of the company. Finally, the results of the present study have implications for the managers of the companies who should put their best of efforts to increase corporate governance levels to enhance financial disclosures which consequently increases stock market liquidity.

LIMITATIONS

Despite the valuable contribution and implications, the present study contains certain limitations. This study is limited to the sample of Indian manufacturing firms. The findings of this study could only be generalised to manufacturing firms similar to those that were included in this research. In addition, sample size is small and the period of the study is just three years.

DIRECTIONS FOR FUTURE RESEARCH

Future research should investigate generalisations of the findings beyond the Indian manufacturing sector. Important control variables such as industry sectors, volatility in returns, leverage etc., should also be inculcated. The time period of the study should be extended. More variables could be taken into account.

REFERENCES

Ahn, H. J., Cai, J., & Yang, C. W. (2012). Which liquidity proxy measures liquidity best in emerging markets? School of Business, Sungkyunkwan University, Jongnogu, Seoul, Korea.Retrieved from www.iksa.or.kr/search/down.php?r

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The governance role of institutional investors andoutside directors on the properties of management earnings forecasts. *Journal of Accounting Research*, 43(3), 343-376.

Black, B. S., Love, I., & Rachinsky, A. (2006). Corporate governance indices and firms' market values: Time series evidence from Russia. *Emerging Markets Review*, 7, 361-379.

Brockman, P., & Chung, D. Y. (2003). Investor protection and firm liquidity. *Journal of Finance*, 58, 921-937.

Chavez, G. A., & Silva, A. C. (2009). Brazil's experiment with corporate governance. *Journal of Applied Corporate Finance*, 21, 34-44.

Chen, W. P., Chung, H., Lee, C., & Liao, W. L. (2007). Corporate governance and equity liquidity: Analysis of S&P transparency and disclosure rankings.*Corporate Governance: An International Review*, 15(4), 644-660.

Chung, K. H., Elder, J., & Kim, J. C. (2010). Corporate governance and liquidity. *Journal of Financial and Quantitative Analysis*, 45(2), 265-291.

Gujarati, D. N. (2003). *Basic econometrics.* USA: McGraw Hill Education.

Heflin, F., Shaw, K. W., & Wild, J.J. (2002). Disclosure quality and market liquidity.*Working paper*, Robert H. Smith School of Business.

Jain, P., Kim, J. C., & Rezaee, Z. (2008). The sarbanes-Oxley Act of 2002 and market liquidity. *Financial Review*, 43, 361-382.

Jing, F. (2012). Stock liquidity, price informativeness and accruals - Based earnings management. *Thesis deposited in Lousiana State University.*

Kanagaretnam, K., Lobo, G. J., & Whalen, D. J. (2007). Does good corporate governance reduce information asymmetry around quarterly earnings announcements?. *Journal of Accounting and Public Policy*, 26(4), 497-522.

Krishnan, R., & Mishra, V. (2012). Intra Liquidity Patterns in Indian Stock Market. Monash University, Department of Economics, ISSN 1441-5429, discussion paper 34/12.

Lang, M., Lins, K. V., & Maffett, M. (2012). Transparency, liquidity, and valuation: International evidence on when transparency matters most. *Journal of Accounting Research*, 50(3), 729-774.

Li, W. X., Chen, C. C. S., & French, J. J. (2012). The relationship between liquidity, corporate governance, and firm valuation: Evidence from Russia. *Emerging Markets Review*, 13(4), 465-477.

Loukil, N., & Yousfi, O. (2010). Does corporate governance affect stock liquidity in the Tunisian Stock Market? Munich Personal RePEC Archive, Jan 2010, 1-26.

Malhotra, M., Then, M. M., & Gopalaswamy, A. K. (2012). Liquidity changes around bonus and rights issue announcements: Evidence from Manufacturing and service sectors in India. *IJMBF*, 1(1), 28-34.

Prasanna, P. K., & Menon, A. S. (2012). Corporate governance and stock market liquidity in India. *International*

Journal of Behavioural Accounting and Finance, 3(1-2), 24-45.

Sharma, L. (2005). Ownership Structure and Stock Liquidity- Evidence from Indian Market. Retrieved from www.nseindia.com/.../LS_mar2005.pdf

Shleifer, A., & Vishny, R. (1997). A survey of corporate governance. *Journal of Finance*, 52, 737-775.

Tang, K., & Wang, C. (2011). Corporate governance and firm liquidity: evidence from the Chinese stock market. *Emerging Markets Finance and Trade*, 47(1), 47-60.

Wu, C., & Liu, I. H. (2009). Market liquidity, corporate governance and firm value- Taiwan Evidences. National Chengchi University, Taipei, Taiwan, 1-25.

Yun, H. (2009). The choice of corporate liquidity and corporate governance. *Review of Financial Studies*, 22, 1447-1475.