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MARKET LIQUIDITY, ANALYSTS COVERAGE, AND OWNERSHIP CONCENTRATION: EVIDENCE FROM ASE

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Abstract:

This research investigates the association between analyst coverage, ownership concentration and market liquidity in Amman Stock Exchange (ASE). Using a unique dataset about information asymmetry, several proxies related to the information asymmetry are used to clarify certain aspects of market liquidity. In a sample of 131 companies with comprehensive data collected from company guides and Datastream, information asymmetry measured by analysts' coverage is found to be an important determinant of market liquidity. In particular, market liquidity is lower where firms have larger analysts coverage and where firms are denoted with high degree of ownership concentration. The effect of analysts coverage is, however, found to be more marked in firms with high levels of ownership concentration. The study provides theoretical and empirical improvement of market liquidity literature towards an understanding of the information asymmetry proxies in ASE. Policymakers, after the 2007-2009 scandal have formed governance codes that highlight the importance of disclosure requirements as key responsibility of financial analysts. The link between analysts coverage and market liquidity established in this research provides evidence for insider investors on the roles and potential effectiveness of analysts in carrying this responsibility.

Keywords: *Analysts Coverage, Ownership Concentration, Market Liquidity, ASE*

JEL Codes: *G14 and G32*

1. Introduction

We examine the association between ownership concentration, analysts coverage and market liquidity. There are two conflicting views on the effects of ownership concentration on market liquidity: adverse selection and trading hypotheses. The former argues that when large shareholders possess superior information about the firm's prospects compared to minority shareholders, an adverse selection problem arise, which decreases market liquidity (e.g., Easley & O'Hara 1987; Glosten & Milgrom 1985; Grossman & Stiglitz 1980; Kyle 1985; Rubin 2007). Nevertheless, the latter suggests that minority shareholders trade more often, which increases market liquidity (e.g., Demsetz 1968; Merton 1987; Schwartz & Shapiro 1992). Prior literature on the relationship between ownership concentration and market liquidity is far from conclusive (e.g., Attig et al., 2006; Brockman et al., 2009; Ginglinger & Hamon 2007; Heflin & Shaw 2000; Jacoby & Zheng 2010; Naes 2004). Interestingly, there is few evidence on how analyst coverage is associated with market liquidity. This paucity of evidence motivates our study.

Moreover, we test the association between ownership concentrations, analysts' coverage and market liquidity on Amman Stock Exchange (ASE) who is often regarded as one of the most successful Arab countries in protecting investors (i.e. minority investors) relative to its economic size. Therefore, Jordan offers an ideal setting to examine the degree of information asymmetry in the region. In particular, little evidence documents with respect to the relationship of ownership concentration, analysts' coverage and market liquidity. This relationship is important to capital market participants mainly minority shareholders given the role of analysts' forecasts in transforming the private information into public that leads to higher market liquidity (e.g. Brennan & Subrahmanyam, 1995; Roulstone 2003; Jiang et al. 2011). Others (e.g.,Van Ness et al. 2001; Easley et al. 1998) document a negative relationship between analysts coverage and market liquidity. These studies assume that financial analysts have a greater motivation to follow firms with higher ownership concentration. Thus, the relationship between analysts coverage and market liquidity is also expected to be positive (negative) when the firm's ownership is concentrated (dispersed). To sum up, although scholars report that analysts coverage and ownership concentration is related to market liquidity, empirical evidence on this relationship is mixed.

We include a sample of ASE firms for the period of 2005-2013. In investigating the relationship between analysts' coverage, ownership concentration and market liquidity, we incorporate a number of control variables that are important determinate of market liquidity such as shares price, return volatility and firm size in the OLS models. Our findings indicate that firms with larger number of analysts following have higher proportional bid-ask spread and

lower trading activity measures (i.e., turnover ratio by volume and trading volume). Moreover, we notice that firms with higher ownership concentration have a wider proportional bid-ask spread and lower turnover ratio by volume and trading volume. Interestingly, we show that the effects of analyst following on market liquidity are more pronounced in concentrated firm. Our findings are consistent with Rubin (2007) who document a negative association between ownership concentration and market liquidity. And in the line with the findings of Jiang et al. (2011) show that firms with larger analysts' coverage have lower market liquidity.

Our study adds to the literature that investigates the association between ownership concentrations, analysts' coverage and market liquidity the following two points. First, by documenting a relationship between analysts following and market liquidity, we show that financial analysts are linked with the information environment of the firms. We also infer that financial analysts may access the precision of private information of the firm's prospects when ownership concentration is higher, which in the line with the adverse selection hypothesis.

Second, our study adds to the literature on the market liquidity. To the best of our knowledge, this study is the first of its kind to links ownership concentration, analyst coverage and market liquidity in ASE. Our findings are important given the significant effect of analysts coverage in reducing the degree of information asymmetry between insider and outsider investors. Our findings document that analysts coverage is an important determinant of market liquidity in highly concentered firms.

The remainder of this article is organized as follows. In section 2, we form our hypotheses. We present our methodology and the research model in section 3 and discuss the sample selection in section 4. We highlight the results in section 5 and document our conclusions in section 6.

2. Literature Review and Hypothesis Development

Blockholders have an informational advantage over minority shareholders with regarding the firm's private information and possess economies of scale in the collection of information (e.g., Brockman et al., 2009; Heflin & Shaw 2000; Jacoby & Zheng 2010). As a result, we conjecture that blockholders may trade in that private information. Theories offer a clear expectation on the association between ownership concentration and market liquidity. For example, Coffee (1991) was among the first to point out that the active role of large shareholders and the liquidity of their shares cannot go hand on hand. Others (Glosten & Milgrom, 1985; Copeland & Galai 1983) also argue that large shareholders are informed investors who may trade against uniformed investors. As a result, market makers increase the bid-ask spread, which leads to lower market liquidity.

Nevertheless, the empirical studies that have examined the impact of blockholders on market liquidity have been inconsistent (Brockman et al., 2009; Heflin & Shaw 2000; Jacoby & Zheng 2010). For instance, Kini & Mian (1995) document a significant and positive relationship between blockholders and bid-ask spread for 1063 NYSE listed firms for 1985. Moreover, Heflin & Shaw (2000) investigate the impact of blockholders on market liquidity, measured by quoted, effective, adverse selection components of bid-ask spread and depth, in 260 US listed firms, over the period from 1988 to 1989. They report a positive relationship between blockholders and, the quoted and effective bid-ask spread, and adverse selection spread components.

Furthermore, Rubin (2007) examines the effect of blockholders on market liquidity using a sample of 1369 NYSE firms for the period 1993-2003. He documents a negative relationship between blockholders and dollar volume and a positive relationship between bid-ask spread and price impact ratio. Similar to that vein, Brockman et al. (2009) and Jacoby & Zheng (2010) examine the relationship between blockholders and market liquidity and report a negative relationship between them. Following this series of empirical studies, we form the relationship between ownership concentration and market liquidity as follows:

H1: There is a negative association between shareholder concentration and stock market liquidity.

Many shareholders do not have the potential to analyse the information in firm's earnings forecasts. In making trading decisions, they depend on the recommendations from financial analysts. As a result, an effective way for managers to influence market liquidity is to provide financial information directly to financial analysts. By improving the firm's information environment through higher quality financial reports and more disclosure, firms can reduce the the degree information asymmetry which leads to a higher market liquidity (e.g. Copeland & Galai 1983; Welker, 1995).

Nevertheless, the relationship between analysts following and market liquidity will depend on whether the firm is concentred or dispersed (i.e., firms who are more (less) concentrated are more (less) likely to to be followed by financial analysts. On the one hand, in concentrated firms blockholders may access valuable private information and thus they can create an adverse problem in the capital market (e.g., Jiang et al. 2011; Zhou 2011). These studies suggest that the adverse selection risk faced by market makers may be negatively correlated with the number of analysts following the firm. In turn, this implies that the bid-ask spread may be lower for firms followed by a larger number of financial analysts. Following this series of reasoning, we form the relationship between analysts coverage and market liquidity as follows:

H2: There is a negative association between analysts following and market liquidity

In summary, the review of the empirical papers that investigate the influences of ownership concentration and analysts' coverage on market liquidity reveals several important gaps in the literature. In the first place, the number of empirical studies in this area is clearly limited and this explains the few papers that were discussed in the empirical review. In addition, the review indicates the need for this study in the ASE since most of the above-mentioned studies come from the US and developed markets (Chiang & Venkatesh 1988; Dennis & Weston 2001; Kini & Mian 1995; Rubin 2007; Jiang et al. 2011). However, as discussed previously, the differences in corporate governance arrangement, codes' rules and regulations between countries justify the need for more country-specific studies especially from the MENA countries. To the best of our knowledge, this study is the first of its kind in the ASE that investigates the effect of ownership concentration and analysts' coverage on market liquidity.

3. The Methodology and Model

This study depends on linear regression using the method of ordinary least square (OLS). We run linear regressions using the proportional bid-ask spread (PBAS), turnover by volume (TRVO), then trading volume (VO) as measures for stock market liquidity. Generally, the relationship that relationship between ownership concentration, analysts coverage and market liquidity can be written as follows:

$$LIQ_{it} = \alpha_0 + \beta_1 BKO_{it} + \beta_2 ANAL_{it} + \gamma_1 MV_{it} + \gamma_2 P_{it} + \gamma_3 VOL_{it} + \sum_{i=1}^{n} IND + \sum_{i=1}^{n} YEAR + \varepsilon_i \ldots\ldots\ldots (1)$$

LIQit	Market liquidity variables: information friction (proportional bid-ask spread) and real friction (trading volume and turnover by volume)
ANALit	Number of analysts who follow the firms
BKOit	Proportion of aggregate blocks of at least 3% of the firm's outstanding shares held by outside investors
MV it	The natural logarithm of the market capitalization as a proxy for firm size
P it	Price per share
VOL it	Return volatility measured by the standard deviation of daily returns
IND	A dummy variable for industry
YEAR	A dummy variable for each year of the eight years from 2005-2013, 2005(y1), 2007 (y2)……. 2013 (y9)
εit	Unobservable individual-specific effect

The model includes three control variables –size, return volatility and share price- that previous studies document that they are related to the firm's information asymmetry and that may affect the association between ownership concentration , analysts coverage and market liquidity. We measure firm size (MV) as the natural logarithm of market capitalization at the end of the fiscal year. Previous research report that firm size has a positive impact on market liquidity as stated by Anderson & Fraser (2000). In addition, larger firms, on average, release more information than

smaller firms release and had more analyst coverage and are thus subject to more scrutiny by the investment community than smaller firms (e.g., Brennan & Subrahmanyam 1995). Thus, we expect a positive relationship between MV and market liquidity.

We control for the volatility in returns (VOL) because it reflects information uncertainty. Prior studies (e.g., Mclnish & Wood 1992; Stoll 1978; Tinic & West 1972; Jegadeesh & Subrahmanyam 1993) have confirmed that there is a positive relationship between price volatility and bid-ask spread. We measure volatility of share price as the standard deviation of daily returns. Moreover, we include the share price (P) to control for price discreteness and acts as a proxy for market depth; that is, low prices are associated with higher market depth (Jegadeesh & Subrahmanyam 1993; Welker 1995; Stoll 2000). Thus, this study measures the annual stock price using the average of the daily closing prices.

4. Sample Selection and Descriptive Statistics

4.1. Sample Selection

We choice our sample from the population of Amman Stock Exchange (ASE) firms over the period 2005-2013. We extract data on ownership concentration from the companies' guides, analysts' coverage data from the I/B/E/S database, and accounting and market data from DataStream. The sample contains all firms with comprehensive data for the main variables used in the empirical analyses. Our main sample consists of 131 non- financial firms.

4.2. Descriptive Statistics

Table 1 shows descriptive statistics for the variables used in the empirical tests. The mean (median) value of ownership concentration (BKO) is 34% (23%).Furthermore, the mean (median) of the analysts following (ANAL) is 9.64 (5). For market liquidity proxies, Table 1 reports that the mean (median) of proportional bid- ask spread (PBAS) and trading volume (VO) are JD 0.03 (JD 0.01) and JD 28546 (JD 7549.3), respectively indicating that our sample contains of relatively liquid firms. For firm characteristics, mean (median) firm size (MV) and return volatility (VOL) are JD 157.53 (JD 20.70), 9.4% (8.4%), respectively revealing that our sample contains of relatively larger and less risky firms. The mean (median) of share price is JD 2.39 (JD 1.6).

Table 1
Descriptive Statistics

Table 1 presents descriptive statistics for the dependent variables and independent variables. Total number of firms is 131 over the period 2005-2013. Variable definitions are given in Appendix 1.

	Mean	Median	Standard Deviation	Max	Min
VOL (%)	9.4%	8.4%	4.2%	29.5%	0
MV in millions JD	157.53	20.70	653.86	10445.04	1.01
VO in thousand	28546.09	7549.3	65606.02	875496.4	0
PBAS in pence	0.0307	0.0063	6.1020	0.50	0
P	2.39	1.6	4.38	46.51	0.03
TR (%)	1.35	0.34	2.9	31.62	0
BKO (%)	34%	23%	36%	95%	0
# of ANAL	9.64	5	10.41	35	0

Table 2 shows the Pairwise correlations among the variables used in the empirical results regressions. The table shows that blockholders (BKO) is negatively correlated with turnover by volume (TRVO) and trading volume (VO), showing that the firms with higher block ownership have lower market liquidity. Analysts coverage (ANAL) is insignificantly positively correlated with turnover by volume (TRVO) and negatively with proportional bid-ask spread (PBAS). For market liquidity measures, turnover by volume (TRVO) is significantly positively related with

trading volume (VO). While, proportional bid- ask spread (PBAS) is negatively correlated with turnover by volume (TRVO) and trading volume (VO).

Table 2
Correlation Matrix

Table 2 shows Pairwise correlation matrix for the variables used in the empirical results. Numbers are significant at 5% and more. Variable definitions are given in Appendix 1.

	TR	VO	VOL	MV	P	PBAS	BKO	ANAL
TR	1.00							
VO	0.82*	1.00						
VOL	-0.01	0.02	1.00					
MV	0.08*	-0.04	-0.04	1.00				
P	-0.23*	-0.20*	0.01	0.05	1.00			
PBAS	-0.04	-0.19*	0.04	-0.06	-0.25*	1.00		
BKO	-0.32*	-0.21*	-0.01	-0.01	-0.27*	0.01	1.00	
ANAL	0.04	-0.04	0.02	0.02	0.13*	-0.01	-0.01	1.00

5. Results and Analysis

5.1. The Effect of Ownership Concentration and Analysts Coverage on Market Liquidity

We test the relationship between ownership concentration, analysts coverage and market liquidity. Table 3 reports the estimation results of the OLS dummy year and industry effects regression models. Column (1) reports the results of the proportional bid- ask spread (PBAS). Similar to the findings of Jiang et al. (2011), this study shows that the coefficients on BKO and ANAL are insignificantly positive. Column (2) of Table 3 documents that the coefficient on ANAL is -0.57 (t-stat= -2.33). in the line with the adverse selection hypothesis, the ANAL coefficient is positive and significant at the 1% level showing that there is a negative relationship between analysts following and market liquidity. The BKO coefficient documented in column (3) is positive and significant (coefficient=-0.06, t-stat=-1.69) at the 10% level.

Furthermore, Column (3) reveals a negative relationship between ANAL and market liquidity, this result is once again broadly in the line with the adverse selection hypothesis. In terms of control variables, the results are consistent with our expectations and the previous studies. Columns (1) to (3) show that the return volatility is negatively correlated with market liquidity. In particular, this negative relationship is common in the literature, where firms with higher volatility are exposed to higher uncertainty and information asymmetry (Black 1986; French & Roll 1986). Our results are in line with previous studies (e.g., Poon et al. 2013; Rubin 2007). The coefficient of firm size is negative and significant with proportional bid-ask spread (PBAS). This negative relationship confirms that larger firms have lower information asymmetry and higher market liquidity because they are more able to diversify risk and have quick and greater access to the capital market.

Moreover, Table 3 indicates that the share price has a significant effect on market liquidity. Under the OLS estimation, the negative relationship is consistent with the trading hypothesis. For instance, Stoll (2000) reports a negative and relatively significant relationship between share price and market liquidity. One of the most common tests used to check for the multicollinearity problem is called the variance inflation factor (VIF), which is calculated as follows:

VIF=1/tolerance……..……..……..……(2)

Where:

Tolerance = 1-R2

R2 is the coefficient of determination

It has been suggested that, if the VIF exceeds 10, which means that R2 exceeds 90%, this indicates a multicollinearity problem for those variables in the model using market liquidity as the main dependent variables.

The results of VIF tests indicate that multicollinearity is not a problem in our dataset. From Table 4 it is clear that all values are less than 10. From Table 4, we can notice that the average VIF is 1.89. Consequently, this value confirms that our dataset is free from multicollinearity problems.

Table 3
Relationship between Ownership Concentration, Analyst Coverage and Market Liquidity

Table 3 reports the results of the regressions that run the dependent variables (proportional bid-ask spread (PBAS), trading volume (VO), and the turnover by volume (TRVO) on block holders (BKO) and analysts coverage (ANAL) and control variables (MV, VOL, and MV). Variable definitions are given in Appendix 1. ***,**,* indicate significance at 1%,5%,10% levels respectively.

	PBAS	**VO**	**TRVO**
ANAL	0.08 (1.13)	-0.57 (-2.33)***	-0.76 (-5.61)***
BKO	0.02 (1.55)	-0.05 (-0.64)	-0.06 (-1.69)*
MV	-0.03 (-2.51)**	0.29 (3.07)***	0.05 (0.84)
VOL	-0.02 (-0.53)	-0.23 (3.14)***	-0.09 (-1.95)*
P	-0.07 (-1.69)*	-0.06 (-0.35)	-0.58 (-6.43)***
Constant	0.08 (1.67)*	2.76 (10.67)***	0.35 (2.24)***
Industry Dummy	*Yes*	*Yes*	*yes*
Year Dummy	*Yes*	*Yes*	*Yes*
Observations	1179	1179	1179
Adjusted R^2	0.85	0.17	0.30

Table 4
Variance Inflation Factors (VIFs) Test

Table 4 presents an overview of the maximum variance inflation factors (VIFs) test for all research variables reported in Table 3. The reported VIFs are the maximum VIFs obtained from the regression analyses in STATA 11.

	PBAS	**VO**	**TRVO**
BKO	1.54	1.54	1.54
ANAL	1.04	1.04	1.04

MV	1.06	1.06	1.06
VOL	1.04	1.04;2	1.04
P	1.27	1.27	1.27
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
Mean VIF	1.89	1.89	1.89

5.2. Further Analysis and Robustness Checks

This section provides a further test to confirm the prior results in the main analysis and to pinpoint any potential drawbacks about our model. In particular, this study divides the data into concentered, dispersed firms based on their blockholder ownership, and re-examines the relationship between analysts coverage and market liquidity. In fact, this check allows us to determine whether the nature of the relationship between market liquidity and analysts coverage is different between concentrated and dispersed firms. Concentrated (dispersed) firms are defined as firms that have a block ownership (equal to or greater) than the median of block ownership for the entire sample of 64 firms. In Table 5 Panels A and B, the study reports the pooled OLS year and industry dummies results for concentrated and dispersed firms respectively. With respect to analyst following, Table 5 Panel A reveals that the effect of analyst following on proportional bid-ask spread (PBAS) is stronger and significant for concentrated firms than dispersed firms. Moreover, analysts following have a more negative and significant effect on trade turnover by volume ratio (TRVO) and trading volume (VO). Taken together, Table 5 shows that the relationship between analysts coverage and market liquidity is stronger and more significant for concentered firms than dispersed firms. Existing literature has stated that concentrated firms have a higher degree of information asymmetry between insider and outsider investors, which leads to lower market liquidity (Chiang &Venkatesh 1988; Jacoby & Zheng 2010; Kini & Mian 1995; Williams 1986). In contrast, dispersed firms have a large number of shareholders; as a result, more investors will participate in trading. Consequently, this may dilute the relationship between analysts coverage and market liquidity (Jacoby & Zheng 2010; Jiang et al. 2011).

Table 5

Table 5 shows the results of the regressions that run the dependent variables (proportional bid-ask spread (PBAS), trading volume (VO), and the turnover by volume (TRVO) on blockholders (BKO) and analysts coverage (ANAL) and control variables indicated above.. Variable definitions are given in Appendix 1. ***,**,* indicate significance at 1%,5%,10% levels, respectively.

Model	Intercept	ANAL	VOL	MV	P	Adj.R2
Panel A Concentrated Firms						
PBAS	0.15 (1.69)*	0.05 (1.35)	-0.01 (-0.28)	-0.08 (-2.96)	-0.07 (-0.90)	0.80
TRVO	0.35 (1.66)	-0.12 (-2.17)**	0.03 (0.42)	-0.13 (-2.17)**	-0.68 (-6.22)***	0.26
VO	3.98 (15.45)***	-0.12 (-1.57)	0.11 (0.96)	0.07 (1.02)	-0.61 (-3.52)***	0.15
Panel B Dispersed firms						
PBAS	-0.02 (-0.63)	0.01 (1.29)	-0.01 (-1.03)	0.01 (0.42)	-0.09 (-2.88)***	0.93
TRVO	0.29 (2.12)**	-0.04 (-0.90)	0.06 (0.94)	-0.05 (-0.97)	-0.57 (-4.72)***	0.18

VO	3.07 (12.23)***	-0.01 (-0.01)	0.50 (4.15)***	0.38 (3.33)***	0.48 (1.60)	0.26

6. Conclusion:

The association between ownership concentration, analysts coverage and market liquidity consider one of the most area in the MENA countries such as Jordan, where the legal protection of investors is weak. The issue is particularly relevant post to the 2007-2008 financial crisis, where large shareholders and insiders have often been blamed for their greedy behavior against minority shareholders. Theoretical perspectives on the effects of ownership concentration, analysts coverage and market liquidity are far from conclusive, and there is little empirical work on how analysts coverage is related to market liquidity in ASE. Our findings on this issue reveal that companies with more financial analysts coverage have lower market liquidity. In addition, we notice that companies with higher ownership concentration have lower market liquidity. Nevertheless, the effect of analysts coverage is, however, found to be more marked in firms with high levels of ownership concentration.

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Appendixes

Appendix 1: Definition of the Variables

Variable	Description
Bid (PB)	The highest price for a stock in a particular day at which the market maker (i.e. dealer) is willing to buy
Ask (PA)	The lowest price for a stock in a particular day at which the market maker (i.e. dealer) is willing to sell
Proportional Bid-Ask Spread (PBAS)	(PA-PB)/ (PA+PB)/2
Trading Volume (VO)	The total value of shares traded for a stock on a particular day in JD adjusted for capital action (stock split)
Turnover Ratio (TR)	The number of times that shares are traded for a stock on a particular day, calculated by dividing stock trading volume (VO) by the number of shares outstanding (WC05301)
Blockholders (BKO)	The proportional of aggregate blocks of at least 3% of the firm's outstanding shares held by all institutional investors

Analysts Coverage (ANAL)	The number of analyst who follows the firms
Return Volatility (VOLI)	The standard deviation of daily returns
Share Price (P)	The official closing price expressed in pence
Market Value of Equity (MV)	Is measured as the share price on a specific date multiplied by the number of ordinary shares in an issue adjusted for capital action changes (stock split and dividend) (P * WC05301)