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Liquidity, Information Asymmetry and the Role of IFRS: In case of Korea

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Abstract

This study investigates the relation between accounting liquidity and information asymmetry. Firms with greater portion of non-current assets are likely to have severe information asymmetry because market participants do not know the intrinsic value of non-current assets. We find evidence that bid-ask spreads, the empirical measure of information asymmetry used in this study, are inversely related to accounting liquidity. Meanwhile, a firm's manager with high information asymmetry can choose the new accounting method or disclosure to maximize the value of assets. Korean firms used the current arrangement method (CAM) mandatorily presenting the statement of financial position before the International Financial Reporting Standards (IFRS) era. Under IFRS, however, they can select either CAM or the non-current arrangement method (NCAM). We find that firms with large proportion of non-current assets using NCAM mitigate the level of information asymmetry proxies. This result indicates that simply changing the order of presentation in the statement of financial position arouse the materiality of non-current assets to market participants. We suggest that this result can be associate with order effect, especially primacy effect.

Key words: Liquidity, Information Asymmetry, Bid-ask Spread, IFRS, Arrangement Method

1. Introduction

Liquidity in accounting field means how easy assets are converted to cash. The liquidity of an asset is reflected in the level of easiness in buying or selling it. The more liquid a firm's assets, the faster they can be sold. Asset liquidity is, therefore, generally considered being easier to finance (Myers and Rajan 1998). In contrast, financial liquidity indicates how quickly securities issued by a firm can be converted into cash in the stock market. The liquidity of a stock can be measured by transaction cost because market illiquidity means that it is difficult to trade the stock (Amihud and Mendelson 1986).

An important component of transaction cost of an asset is the spread between buyers' and sellers' prices. Manager who is aware of the intrinsic value of an asset wants to sell at that price to a minimum, while outsider who may not know the information can hesitate to purchase at the manager's ask price. Information asymmetry can stem from private information of managers because they observe changes in productivity and value on each asset directly (Aboody and Lev 2000). Thus, financial liquidity as well as accounting liquidity represents information asymmetry about the private information of assets or stocks.

Meanwhile, managers have incentives to maximize firms' value and reduce information asymmetry by switching to newly available accounting technique or principles which financial statements more informative to investors (Bartov and Bodnar 1996). Managers also improve quantity and quality of disclosure, so that stock price of their firm is higher due to reduced information asymmetry (Diamond and Verrecchia 1991).

For example, the adoption of International Financial Reporting Standards (IFRS) is expected to not only enhance the quantity or quality of disclosure but also improve the reliability of financial information (Barth et al. 2008; Christensen et al. 2012). IFRS based on the principle-based accounting can also give discretion to firm's manager so that they can present market participants with more information reflecting substance of the firm compared to the previous local GAAP. In other words, IFRS enable firms to give a chance to reduce the degree of information asymmetry between insiders and outsiders by delivering sufficient and informative disclosure (Leuz and Verrecchia 2000; Armstrong et al. 2010).

We extract all the data used in this study from Korean stock market. Actually, Korean stock market may be a better tool for our purpose because it has favorable environments to examine information asymmetry between insiders and outsiders for the following reasons. First, listed firms in Korea have adopted IFRS since 2011. This is a remarkable change of accounting standards in Korea. For example, Korean local GAAP are rule-based accounting standards, while IFRS are principle-based ones. IFRS also allow managers discretion to provide outsiders with information more

relevant to firms' economic substance than Korean local GAAP. Accordingly, managers with high information asymmetry can choose the new accounting method or disclosure of IFRS to maximize the value of assets (Bartov and Bodnar 1996; Armstrong et al. 2010; Christensen et al. 2012).

Second, listed firms in Korea used the current arrangement method (CAM) mandatorily in reporting the statement of financial position before IFRS era. Under IFRS, however, managers can select either CAM or the non-current arrangement method (NCAM).[1] Shawn et al. (2012) find that firms with large proportion of non-current assets change from CAM to NCAM after IFRS adoption, and that the value of non-current assets of NCAM firms is more relevant than that of firms using CAM is. These results indicate that NCAM firms can show the materiality of information on their financial position by using new presentation order of IFRS, and that outsiders can be affected by the presentation order.

In this study, we first investigate the relation between accounting liquidity and financial liquidity. Accounting liquidity is defined as the ratio of non-current assets divided by total assets. A firm with greater portion of non-current assets is predicted to be more likely to have severe information asymmetry between insiders and outsiders because market participants do not know the intrinsic value of non-current assets. Consequently, outsiders who are interested in the firm's share are reluctant to purchase it at the market price.

Second, we examine whether accounting liquidity implied by a firm's disclosure in CAM versus NCAM has an impact on financial liquidity. In other words, we investigate whether a firm with greater portion of non-current assets, which changes from CAM to NCAM after IFRS adoption, can reduce information asymmetry.

For a sample of 5,734 firm-year observations drawn from KIS-value database over six fiscal years from 2007 to 2012, we find a strong positive association between the non-current asset ratio (i.e. accounting liquidity) and two measures of the bid-ask spread (i.e. financial liquidity). This finding is in line with prior studies (e.g., Aboody and Lev 2000; Barth et al. 2001) that examine relation between the size of intangible assets (e.g., R&D) and insider trading as well as analyst coverage. However, previous literatures focus on the uncertain disclosure of intangible asset. In comparison, our finding indicates that the liquidity of a firm's assets is closely related to the level of information asymmetry inferred from trading of its shares in the stock market.

However, isolating NCAM firms from the whole sample, we find that the non-current asset ratios of NCAM firm are negatively related to information asymmetry proxies of these firms. This result indicates that simply changing the presentation order of a firm's assets in the statement of financial position arouse the materiality of non-current assets to market participants. Results from additional analyses, including the control for other information asymmetry proxies such

as volatility of stock prices and trading volume, consistently support these main findings.

Our findings are closely related to the results of Shawn et al. (2013). In that paper, they elucidate a NACM firm's characteristics and hidden intention to send positive information to outsiders by using NACM. Our paper is an extension of Shawn et al. (2013) by investigating the effects of mandatory IFRS adoption on information asymmetry. However, our paper has additional contributions in several respects. First, we identify the consequence of NCAM. That is, our findings indicate that this provision of discretion after IFRS adoption presents outsiders with a firm's substance at a glance. Second, we shed light on the unexpected role of IFRS. In other words, our findings suggest that simply discretion granted by IFRS can mitigate information asymmetry.

The reminder of the paper proceeds as follows: In Section 2 we provide background and develop hypotheses; Section 3 lays out our empirical model and describes the sample; Section 4 provides empirical results; Section 5 concludes.

2. Hypothesis development

The relations among disclosure, information asymmetry and market liquidity have been established in prior literature. Amihud and Mendelson (1986) identify the significant association between average risk-adjusted returns on the stock market and

bid-ask spread. This result implies that uncertainty of information can decrease market liquidity. Diamond and Verrecchia (1991) make theoretical models to explain a firm's disclosure has an impact on market liquidity. Managers' disclosure can affect market liquidity because information asymmetry between managers and outside investors increase transaction costs and reduce market liquidity. Bartov and Bodnar (1996) document that a manager whose firm has greater information asymmetry is likely to switch to more informative accounting techniques. Aboody and Lev (2000) report that the sources of private information such as research and development disclosure lead to information asymmetry. Barth et al. (2001) also find that analyst coverage is significantly associated with intangible assets. Thus, these studies suggest that disclosure policy is a major contributor to information asymmetry between insiders and outsiders.

Managers know intrinsic value of assets better than outsiders by using internal information, i.e. fair value of each asset. However, outsiders cannot help depending on the disclosure (e.g. financial statements) reported by managers. Information asymmetry in non-current assets, moreover, is greater than current assets for several reasons. First, most of current assets can be measured by fair value accounting, while non-current assets cannot. Second, the non-current assets take time to be converted to cash because managers who know the intrinsic value of the non-current assets

want to sell at that price to a minimum, while outsiders who may not know the information can hesitate to purchase at the managers' ask price. A firm's stocks reflect the firm's information. Consequently, information asymmetry of non-current assets will bring the difference between selling price and the purchase price of the stocks. Based on the above, we present the following hypothesis:

Hypothesis 1: Firms with greater portion of non-current assets are more likely to have severe information asymmetry.

IFRS adoption has advantages for several reasons in that IFRS are expected to reduce information asymmetry between insiders and outsiders. First, IFRS can improve the quality of financial statements by reflecting firms' economic substance, hence providing outsiders with more relevant information such as fair value accounting (Barth et al. 2008). Second, outsiders prefer to expand the quantity of firms' disclosure per se because it is difficult for them to access internal information on their firms (Daske et al. 2013; Christensen et al. 2015). As a result, IFRS adoption can also have a positive impact on the quantity of voluntary disclosure because of increased demand for transparency from outsiders (Li and Yang 2016). Third, IFRS adoption increases comparability of firms across countries (DeFond et al. 2011). Improved comparability can decrease transaction cost of outsiders, thereby increasing capital outflows (Covrig et al.

2007; Defond et al. 2011; Florou and Pope 2012).

Furthermore, IFRS allow all the listed firms to select their arrangement method in the statement of financial position (IFRS 1001 'Presentation of financial statements' paragraph 57, paragraph 60-64). Thus, IFRS enable firms to choose either current arrangement method (CAM) or non-current arrangement method (NCAM). To be concrete, CAM is that current assets or liabilities are listed ahead of non-current assets or liabilities. This is the method that assets or liabilities are listed in the order of descending liquidity. On the other hand, NCAM means that non-current assets or liabilities are listed ahead of current assets or liabilities in the ascending order of liquidity.

In the Pre-IFRS era (i.e. under Korean local GAAP), Korean firms have used CAM mandatorily. After IFRS adoption in 2011, however, firms can change their arrangement method on the statement of financial position from CAM to NCAM. This change implies that IFRS based on the principle-based accounting can provide outsiders with more informative substance of the firm than Korean local GAAP by giving discretion to firm's manager (Shawn et al. 2013).

Several studies document that auditors, financial analysts as well as information users can be affected by the reporting location in the financial statements (Hirst and Hopkins 1998; Bonner 2003). There are two kinds of order effects, primacy effect,

and recency effect. When information is given consecutively, the most recently presented information can be remembered the best. This is called recency effect. In contrast, when information is given concurrently, firstly presented information will be more important in making decision (Miller and Campbell 1959; Asare 1992; Hogarth and Einhorn 1992; Trotman and Wright 1996). This is called primacy effect.

Shawn et al. (2013) document that outsiders are presented with information of the statement of the financial position at the same time. As a result, the decision making process of outsiders is affected by primacy effect. Therefore, a manager whose firm has more important non-current assets quantitatively as well as qualitatively has an incentive to use NCAM. Also, outsiders can evaluate non-current assets much important and examine them carefully when they are presented first in the statements of financial position. Taken together, this array of IFRS can mitigate information asymmetry between insiders and outsiders by giving more informative discretion of the statement of financial position. To sum it up, our second hypothesis is stated below.

Hypothesis 2: NCAM Firms with greater portion of non-current assets are more likely to mitigate information asymmetry.

3. Research Design

3.1 Multivariate Model

We use regression analysis in order to identify the relation between accounting liquidity (i.e. ratio of non-current assets) and information asymmetry, and to examine whether the difference in reporting methods on the statement of financial position decreases information asymmetry. Our regression model is as follows:

$$IA_{it} = \gamma 0 + \gamma 1 RNCA_{it} + \gamma 2 NCAM_{it} + \gamma 3 RNCA_{it}*NCAM_{it} + \gamma 4 SIZE_{it} + \gamma 5 LEV_{it} + \gamma 6 ALTMAN_{it} + \gamma 7 GROWTH_{it} + \gamma 8 RMS_{it} + \gamma 9 RFS_{it} + \gamma 10 MTB_{it} + \gamma 11 BIG4_{it} + \gamma 12 NEGE_{it} + \gamma k \sum YEAR_{it} + \gamma k \sum IND_{it} + \varepsilon_{it} \ (1)$$

IA_{it}: proxies of information asymmetry; bid-ask spread (SP01), effective spread (SP02), volatility (VOLA), and trading volume (VOLU)

$SP01_{it}$: bid–ask spread for firm i in year t;

$SP02_{it}$: effective spread for firm i in year t;

$VOLA_{it}$: volatility of stock price for firm i in year t;

$VOLU_{it}$: volume of common stock for firm i in year t;

$RNCA_{it}$: ratio of the non-current assets divided by total assets for firm i in year t

$NCAM_{it}$: 1 if firm i's arrangement method of the statement of financial position in 2011 is non-current arrangement method and 0 otherwise

$SIZE_{it}$: natural logarithm of total assets for firm i in year t

LEV_{it}: total debt divided by total equity for

firm i in year t

ALTMANit: Altman (1968) Z score for firm i in year t

GROWTHit: growth rate of sales for firm i in year t

RMSit: ratio of the largest shareholder and the related party ownership for firm i in year t

RFSit: ratio of foreign investment ownership for firm i in year t

MTBit: ratio of market to book value of equity for firm i in year t

BIG4it: 1 if firm i's auditor is big4 and 0 otherwise

NEGEit: 1 if firm i's net income is negative and 0 otherwise

YEAR: year dummy variable

IND: industry dummy variable

If a large proportion of non-current assets has an impact on information asymmetry, the coefficient of the ratio of non-current asset (γ1) will be significantly positive (+). Also, if the relation between a large proportion of non-current assets with information asymmetry is attenuated, when a firm with large proportion of non-current assets uses NCAM to emphasize non-current assets, the coefficient of interaction term (γ3) will be significantly negative (-) respectively.

Each of the explanatory variables are correlated with proxies of information asymmetry. Natural logarithm of total assets (SIZE) and leverage (LEV) are included in the model because firm size and debt ratio can be affecting the level of private information and the number of the

interested parties (DaDalt et al. 2002). We use the Altman (1968) Z score to control firms' characteristics such as financial distress (Shawn et al. 2013). We also include growth ratio of sales (GROWTH) since the growth of a firm can increase uncertainty of information (Leuz and Verrecchia 2000). Ratio of the largest shareholder and the related party ownership (RMS) can influence on information asymmetry (Dennis and Weston 2001). We also include ratio of foreign investment ownership (RFS) as control variables because information gap between domestic and foreign investors exists (Covrig et al. 2007; Defond et al. 2011). Market-to-book (MTB) represents a firm's growth opportunity and financing choice (Tang 2009). Auditor size (BIG4) and loss firm (NEGE) can affect the quality of disclosure in financial statements (Bugstahler and Dichev 1997; Bamber et al. 2010).

3.2 Estimation of information asymmetry

To estimate the level of information asymmetry for our sample, we employ two measures of the bid-ask spread by Bessembinder (2003), which is developed and widely used in the finance (market microstructure) literature. Two spread measures are the quoted spread and the effective spread. They are defined as follows:

SP01 = qa - qb / 0.5(qa + qb)   (2)

SP02 = 2D (P - M) / M = [2D{P - 0.5(qa + qb)}] / 0.5(qa + qb)   (3)

q_a: best (i.e. the lowest) ask price

q_b: best (i.e. the highest) bid price

D: +1 for purchase and -1 for sale

P: the price at which a trade is actually executed

For each sample firm, we estimate daily quoted spread and quoted spread for D-1, D0, and D+1 where D0 is the day when the audit report is submitted. Daily spread estimates are averaged, and then we take the natural logarithm of the average quoted spread (SP01) and effective spread (SP02).

3.3 Sample selection

Our sample consists of observations from fiscal years 2007-2010 (pre-IFRS era) and 2011-2012 (post-IFRS era) with financial and accounting data available from Kis-value database. We exclude firms in the financial industry, year-end not ending December, and issues for administration to maintain the homogeneity of our sample. We also remove firms with missing data for financial measures. We winsorize all the variables at the 1st and 99th percentile value to exclude the effect of outliers. These requirements result in a final sample of 5,734 firm-year observations. Table 1 outlines the sample selection process.

Table 1. Sample selection and distribution over years and industries

Sample selection criteria	Firm-years
firms traded over Korea Exchange for 2007-2012	9,991
delete banking firms and non-December fiscal years	(451)
delete firms with missing data	(2,831)
delete firm-years less than eight in each year and each two-digit industry and outliers lying outside top and bottom one percentile of earnings quality measures	(975)
Final sample	5,734

4. Empirical Results

4.1 Descriptive statistics and Correlation

Table 2 reports the descriptive statistics for all variables that represent our samples by the entire time periods of 2007–2012 in regression model. The mean (median) of bid-ask spread (SP01) and effective spread (SP02) are -5.3242 (-5.3643) and -4.6986 (-4.7033), respectively. The mean (median) of volatility (VOLA) and trading volume (VOLU) are 4.0406 (4.0481) and 11.4702 (11.5563), respectively. The mean (median) of RNCA is 0.3211(0.2939). The ratio of NCAM firm (NCAM) is 3.56 % of total samples.

Table 2. Descriptive statistics

Variable	Mean	Std Dev.	Min	1st Quartile	Median	3rd Quartile	Max
SP01	-5.3242	0.7364	-6.9723	-5.8517	-5.3643	-4.8376	-2.4679
SP02	-4.6986	0.6638	-6.8352	-5.1529	-4.7033	-4.2768	-1.8482
VOLA	4.0406	0.3948	2.4106	3.8072	4.0481	4.2692	7.8088
VOLU	11.4702	1.8305	4.2084	10.3281	11.5563	12.7229	17.1537
RNCA	0.3211	0.2499	0.0000	0.1553	0.2939	0.4437	6.9985
SIZE	18.7079	1.4345	15.5905	17.7606	18.3870	19.3213	25.3978
LEV	0.9389	0.9028	0.0420	0.3299	0.6817	1.2316	6.8361
ALTMAN	3.4075	3.6037	-7.7025	1.6594	2.6158	4.1436	56.6818
GROWTH	0.1347	0.3741	-0.7417	-0.0404	0.0886	0.2389	2.9460
RMS	0.3993	0.1666	0.0190	0.2818	0.3897	0.5107	1.0000
RFS	0.0614	0.1137	0.0000	0.0008	0.0089	0.0672	0.8671
MTB	1.2676	1.0523	0.1940	0.5961	0.9418	1.5460	7.6752
BIG4	0.5531	0.4972	0.0000	0.0000	1.0000	1.0000	1.0000
NEGE	0.2656	0.4417	0.0000	0.0000	0.0000	1.0000	1.0000
NCAM	0.0356	0.1001	0.0000	0.0000	0.0000	1.0000	1.0000

Table 2 reports Summary statistics. The sample consists of 5,734 non-banking firm-years that are traded over Korea Exchange for 2007-2012 with non-missing data that are used in empirical analysis and collected from KIS-Value database. SP01=natural logarithm of bid–ask spread for firm i in year t; SP02=natural logarithm of effective spread for firm i in year t; VOLA=natural logarithm of volatility of stock price for firm i in year t; VOLU=natural logarithm of volume of common stock for firm i in year t; RNCA=ratio of non-current assets in total asset for firm i in year t; SIZE=natural logarithm of total assets for firm i in year t; LEV=total debt divided by total equity for firm i in year t; ALTMAN=Altman Z score for firm i in year t; GROWTH=growth rate of sales for firm i in year t; RMS=ratio of the largest shareholder and related party ownership for firm i in year t; RFS=ratio of foreign investment ownership for firm i in year t; MTB=market to book ratio for firm i in year t; BIG4=1 if firm i's auditor is Big 4 and 0 otherwise in year t; NEGE=1 if firm i's net income is negative and 0 otherwise in year t. NCAM=1 if firm i uses non-current arrangement method in disclosing the statements of financial position and 0 otherwise in year t.

Table 3 presents Pearson correlation coefficients for the relations among the firm-specific variables. This table indicates that proxies of information asymmetry except trading volume (VOLU) are positive correlated with each other significantly. What is noticeable is the relation between assets size (SIZE) and the ratio of foreign investment ownership (RFS), which is 0.4720. This relation suggests that foreign investors prefer large firms to mitigate investment risk. Taken altogether, with the exception of few variables, the correlation between the independent variables in the model are not generally material.

Table 3. Pearson correlations

Variable	SP01	SP02	VOLA	VOLU	RNCA	SIZE	LEV	ALTMAN	GROWTH	RMS	RMF	MTB	BIG4	NEGE	NCAM
SP01	1.0000	**0.8107**	0.0118	**-0.3982**	0.0123	**-0.3583**	0.0031	**-0.1270**	**-0.0811**	**0.1750**	**-0.1585**	**-0.2718**	**-0.1418**	**0.1624**	-0.0135
SP02		1.0000	**0.0933**	**-0.2824**	-0.0107	**-0.3331**	0.0143	**-0.1279**	**-0.0399**	**0.1012**	**-0.1424**	**-0.2168**	**-0.1333**	**0.1736**	-0.0178
VOLA			1.0000	**0.4273**	**-0.0324**	**-0.3178**	**0.1220**	-0.0194	**0.0507**	**-0.1975**	**-0.2198**	**0.1742**	**-0.1065**	**0.2677**	0.0219
VOLU				1.0000	**-0.0706**	**0.0895**	**0.1349**	-0.0117	**0.0357**	**-0.4025**	-0.0268	**0.3023**	0.0115	**0.1579**	**0.0477**
RNCA					1.0000	**0.1776**	**0.1360**	**-0.1638**	**0.0886**	**0.1150**	0.0009	**-0.0535**	0.0121	**-0.0911**	**0.0338**
SIZE						1.0000	**0.2118**	**-0.1086**	**0.0453**	**0.0926**	**0.4720**	-0.0270	**0.2679**	**-0.2366**	-0.0246
LEV							1.0000	**-0.3898**	**0.0364**	-0.0308	-0.0148	**0.1421**	0.0139	**0.2134**	-0.0033
ALTMAN								1.0000	**0.0580**	0.0176	**0.0829**	**0.3384**	**0.0491**	**-0.2036**	-0.0016
GROWTH									1.0000	0.0214	0.0065	**0.1100**	**0.0335**	**-0.1631**	0.0086
RMS										1.0000	0.0017	**-0.1638**	**0.0359**	**-0.2260**	-0.0219
RFS											1.0000	**0.0838**	**0.1801**	**-0.1516**	**-0.0481**
MTB												1.0000	**0.0346**	**0.0531**	-0.0135
BIG4													1.0000	**-0.1271**	**-0.0601**
NEGE														1.0000	**0.0526**
NCAM															1.0000

Table 3 reports Pearson Correlation coefficients for variables used in the regression models. Correlations in bolds are significant at less than 5% levels. The sample consists of 5,734 non-banking firm-years that are traded over Korea Exchange for 2007-2012 with non-missing data that are used in empirical analysis and collected from KIS-Value database. *SP01*=natural logarithm of bid–ask spread for firm i in year t; *SP02*=natural logarithm of effective spread for firm i in year t; *VOLA*=natural logarithm of volatility of stock price for firm i in year t; *VOLU*=natural logarithm of volume of common stock for firm i in year t; *RNCA*=ratio of non-current assets in total asset for firm i in year t; *SIZE*=natural logarithm of total assets for firm i in year t; *LEV*=total debt divided by total equity for firm i in year t; *ALTMAN*=Altman Z score for firm i in year t; *GROWTH*=growth rate of sales for firm i in year t; *RMS*=ratio of the largest shareholder and related party ownership for firm i in year t; *RFS*=ratio of foreign investment ownership for firm i in year t; *MTB*=market to book ratio for firm i in year t; *BIG4*=1 if firm i's auditor is Big 4 and 0 otherwise in year t; *NEGE*=1 if firm i's net income is negative and 0 otherwise in year t. *NCAM*=1 if firm i uses non-current arrangement method in disclosing the statements of financial position and 0 otherwise in year t.

4.2 Test of Hypothesis 1

Table 4 provides the test of H1, which examine accounting liquidity on information asymmetry. We exclude NCAM and the interaction variable (RNCA*NCAM) of equation (1). We report the results of four different regressions using different proxies for information asymmetry (SP01, SP02, VOLA, and VOLU). We find the evidence consistent with our hypothesis 1. In Model 1, the significantly positive coefficient on RNCA indicates that accounting liquidity is strong associated with bid-ask spread. In Model 2 and Model 3, our results are similar to Model 1. The coefficient on RNCA is significantly positive. In Model 4, the coefficient on RNCA is significantly negative because the greater trading volume is, the smaller bid-ask spread. That is, our results in Table 4 support for the hypothesis 1 that accounting liquidity is positively associated with the proxies of information asymmetry.

Table 4. Results of hypothesis 1

	Model 1		Model 2		Model 3		Model 4	
	DV= SP01		DV=SP02		DV=VOLA		DV=VOLU	
Variable	Coeffs (t-stat [a])		Coeffs (t-stat [a])		Coeffs (t-stat [a])		Coeffs (t-stat [a])	
Intercept	-1.5546***	(-8.36)	-1.5896***	(-9.16)	5.2634***	(59.86)	7.1276***	(17.50)
RNCA	0.1188***	(2.89)	0.0917**	(2.09)	0.0540***	(2.75)	-0.3195***	(-3.51)
SIZE	-0.2082***	(-22.12)	-0.1703***	(-19.39)	-0.0664***	(-15.00)	0.2848***	(13.89)
LEV	0.0680***	(6.33)	0.0568***	(5.67)	0.0087***	(2.78)	-0.0509***	(-3.51)
ALTMAN	-0.0001	(-0.02)	-0.0023	(-1.28)	-0.0011	(-1.21)	-0.0063	(-1.55)
GROWTH	-0.0062	(-0.54)	0.0116	(1.10)	0.0165***	(3.02)	0.0907***	(3.59)
RMS	0.6625***	(9.50)	0.3322***	(5.10)	0.3567***	(11.12)	-4.0821***	(-27.52)
RFS	0.4270***	(4.26)	0.3904***	(4.17)	0.2532***	(5.19)	-1.9509***	(-8.62)
MTB	-0.1144***	(-13.64)	-0.0826***	(-10.55)	0.0107***	(4.07)	0.1310***	(10.75)
BIG4	-0.0317	(-1.40)	-0.0311	(-1.47)	-0.0210**	(-2.02)	-0.0633	(-1.32)
NEGE	0.1945***	(7.25)	0.1766***	(7.06)	0.1605***	(13.26)	0.5181***	(9.23)
YEAR	Included		Included		Included		Included	
IND	Included		Included		Included		Included	
F Value	41.21***		29.39***		47.33***		56.77***	
Adj. R²	0.2449		0.1863		0.2222		0.2550	

Table 4 reports multivariate test in the regression models. The sample consists of 5,734 non-banking firm-years that are traded over Korea Exchange for 2007-2012 with non-missing data that are used in empirical analysis and collected from KIS-Value database. [a]Two-tailed t-test; *,**, ***significant at less than 10%, 5%, and 1% levels, respectively. See appendix for variable definitions. *SP01*=natural logarithm of bid–ask spread for firm *i* in year *t*; *SP02*=natural logarithm of effective spread for firm *i* in year *t*; *VOLA*=natural logarithm of volatility of stock price for firm *i* in year *t*; *VOLU*=natural logarithm

of volume of common stock for firm *i* in year *t*; *RNCA*=ratio of non-current assets in total asset for firm *i* in year *t*; *SIZE*=natural logarithm of total assets for firm *i* in year *t*; *LEV*=total debt divided by total equity for firm *i* in year *t*; *ALTMAN*=Altman Z score for firm *i* in year *t*; *GROWTH*=growth rate of sales for firm *i* in year *t*; *RMS*=ratio of the largest shareholder and related party ownership for firm *i* in year *t*; *RFS*=ratio of foreign investment ownership for firm *i* in year *t*; *MTB*=market to book ratio for firm *i* in year *t*; *BIG4*=1 if firm *i*'s auditor is Big 4 and 0 otherwise in year *t*; *NEGE*=1 if firm *i*'s net income is negative and 0 otherwise in year *t.*

4.3 Test of Hypothesis 2

Table 5 presents the results for the test of H2, which examine the effects of NCAM on information asymmetry. In Model 1, the significantly negative coefficient on the interaction term (RNCA*NCAM) suggests that NCAM mitigate information asymmetry. In Model 3 and Model 4, our results support

hypothesis 2 that NCAM firms, even if they have greater portion of non-current assets, the relation between accounting liquidity and information asymmetry is attenuated. Our finding suggests that a simple discretion that choose arrangement method of assets after IFRS adoption lead to effectiveness in capital market.

Table 5. Results of hypothesis 2

Variable	Model 1 DV= SP01 Coeffs (t-stat [a])		Model 2 DV=SP02 Coeffs (t-stat [a])		Model 3 DV=VOLA Coeffs (t-stat [a])		Model 4 DV=VOLU Coeffs (t-stat [a])	
Intercept	-1.5345***	(-8.24)	-1.5648***	(-9.00)	5.2593***	(59.77)	7.0878***	(17.40)
RNCA	0.1149**	(2.50)	0.0837*	(1.79)	0.0738***	(3.39)	-0.3507***	(-3.47)
NCAM	-0.0738	(-1.57)	-0.0938**	(-2.14)	-0.0330	(-1.46)	0.1994*	(1.90)
RNCA*NCAM	-0.0270*	(-1.91)	-0.0463	(-1.57)	-0.0899**	(-2.09)	0.0976**	(2.09)
SIZE	-0.2085***	(-22.15)	-0.1707***	(-19.43)	-0.0666***	(-15.05)	0.2856***	(13.94)
LEV	0.0677***	(6.30)	0.0565***	(5.63)	0.0085***	(2.73)	-0.0500***	(-3.45)
ALTMAN	-0.0001	(-0.06)	-0.0021	(-1.18)	-0.0011	(-1.20)	-0.0070*	(-1.70)
GROWTH	-0.0063	(-0.55)	0.0113	(1.07)	0.0169***	(3.11)	0.0905***	(3.58)
RMS	0.6572***	(9.42)	0.3256***	(5.00)	-0.3559***	(-11.10)	-4.0744***	(-27.48)
RFS	0.4186***	(4.17)	0.3799***	(4.06)	-0.2510***	(-5.14)	-1.9248***	(-8.51)
MTB	-0.1143***	(-13.63)	-0.0825***	(-10.54)	0.0107***	(4.09)	0.1310***	(10.76)
BIG4	-0.0329	(-1.45)	-0.0327	(-1.55)	-0.0207**	(-2.00)	-0.0570	(-1.19)
NEGE	0.1966***	(7.32)	0.1790***	(7.14)	0.1614***	(13.31)	0.5094***	(9.06)
YEAR	Included		Included		Included		Included	
IND	Included		Included		Included		Included	
F Value	38.75***		27.76***		44.53***		53.61***	
Adj. R²	0.2452		0.1871		0.2225		0.2561	

Table 5 reports multivariate test in the regression models. The sample consists of 5,734 non-banking firm-years that are traded over Korea Exchange for 2007-2012 with non-missing data that are used in empirical analysis and collected from KIS-Value database. [a]Two-tailed t-test; *,**, ***significant at less than 10%, 5%, and 1% levels, respectively. See appendix for variable definitions. *SP01*=natural logarithm of bid–ask spread for firm i in year t; *SP02*=natural logarithm of effective spread for firm i in year t; *VOLA*=natural logarithm of volatility of stock price for firm i in year t; *VOLU*=natural logarithm of volume of common stock for firm i in year t; *RNCA*=ratio of non-current assets in total asset for firm i in year t; *SIZE*=natural logarithm of total assets for firm i in year t; *LEV*=total debt divided by total equity for firm i in year t; *ALTMAN*=Altman Z score for firm i in year t; *GROWTH*=growth rate of sales for firm i in year t; *RMS*=ratio of the largest shareholder and related party ownership for firm i in year t; *RFS*=ratio of foreign investment ownership for firm i in year t; *MTB*=market to book ratio for firm i in year t; *BIG4*=1 if firm i's auditor is Big 4 and 0 otherwise in year t; *NEGE*=1 if firm i's net income is negative and 0 otherwise in year t. *NCAM*=1 if firm i uses non-current arrangement method in disclosing the statements of financial position and 0 otherwise in year t.

4.4 Additional analysis

Table 6 provides additional test for the test of hypotheses, which add volatility variable (VOLA) equation (1) to control for bid-ask spread. In Model 1 and Model 2, the significantly negative coefficient on the interaction term (RNCA*NCAM) indicates that NCAM mitigate information asymmetry. Therefore, our additional test provides unchanged support for our hypotheses.

Table 6. Additional analysis to control for the bid-ask spread

Variable	Model 1 DV=SP01 Coeffs (t-stat [a])		Model 2 DV=SP02 Coeffs (t-stat [a])	
Intercept	-0.6132**	(-2.46)	-1.5479***	(-6.64)
RNCA	0.1262***	(2.75)	0.0353*	(1.82)
NCAM	-0.0643	(-1.37)	-0.0928**	(-2.11)
RNCA*NCAM	-0.1072**	(-2.08)	-0.0946*	(-1.85)
VOLA	-0.1788***	(-5.58)	-0.1046**	(-2.15)
SIZE	-0.2199***	(-22.86)	-0.1707***	(-18.95)
LEV	0.0713***	(6.36)	0.0560***	(5.33)
ALTMAN	-0.0004	(-0.21)	-0.0021	(-1.17)
GROWTH	-0.0043	(-0.38)	0.0116	(1.09)
RMS	0.5961***	(8.46)	0.3271***	(4.96)
RFS	0.3810***	(3.80)	0.3809***	(4.05)
MTB	-0.1089***	(-12.91)	-0.0824***	(-10.43)
BIG4	-0.0390*	(-1.72)	-0.0343	(-1.61)
NEGE	0.2257***	(8.28)	0.1811***	(7.10)
YEAR	Included		Included	
IND	Included		Included	
F Value	38.58***		27.76***	
adj. R^2	0.2505		0.1877	

Table 6 reports multivariate test in the regression models. The sample consists of 5,734 non-banking firm-years that are traded over Korea Exchange for 2007-2012 with non-missing data that are used in empirical analysis and collected from KIS-Value database. [a]Two-tailed t-test; *,**, ***significant at less than 10%, 5%, and 1% levels, respectively. See appendix for variable definitions. *SP01*=natural logarithm of bid–ask spread for firm *i* in year *t*; *SP02*=natural logarithm of effective spread for firm *i* in year *t*; *VOLA*=natural logarithm of volatility of stock price for firm *i* in year *t*; *RNCA*=ratio of non-current assets in total asset for firm *i* in year *t*; *SIZE*=natural logarithm of total assets for firm *i* in year *t*; *LEV*=total debt divided by total equity for firm *i* in year *t*; *ALTMAN*=Altman Z score for firm *i* in year *t*; *GROWTH*=growth rate of sales for firm *i* in year *t*; *RMS*=ratio of the largest shareholder and related

party ownership for firm i in year t; *RFS*=ratio of foreign investment ownership for firm i in year t; *MTB*=market to book ratio for firm i in year t; *BIG4*=1 if firm i's auditor is Big 4 and 0 otherwise in year t; *NEGE*=1 if firm i's net income is negative and 0 otherwise in year t. *NCAM*=1 if firm i uses non-current arrangement method in disclosing the statements of financial position and 0 otherwise in year t.

5. Conclusion

This paper examines the relation between accounting liquidity and information asymmetry, and how NCAM has impact on information asymmetry after IFRS adoption. Our empirical results suggest that a firm with greater portion of non-current assets have severe information asymmetry between insiders and outsiders because market participants do not know the intrinsic value of non-current assets. Our results reveal that NCAM firms with large proportion of non-current assets exhibit a negative association with information asymmetry proxies. This finding indicates that simply changing the order of presentation in financial statement call outsiders' attention to the materiality of non-current assets.

This paper contributes to accounting study in several respects. This is the first convergent study to examine the relation between accounting liquidity and financial liquidity. Prior studies document the disclosure effect of intangible assets and their uncertainty on information asymmetry. Second, this is the first study to provide evidence that increased discretion of disclosure method through IFRS is an important factor mitigating information asymmetry. Finally, we suggest that our results can be associate with order effect,

especially primacy effect. Our findings shed light on manager's intention trying to present firm's substantial financial position by using order effects. Taken together, this study provides an interesting insight into the role of IFRS in mitigating information asymmetry between insiders and outsiders.

Notes

（1）In contrast, Australia, Canada as well as EU countries have been using NCAM prior to IFRS adoption.

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