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Article

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Global Business & Finance Review (GBFR)

Provided in Cooperation with:

People & Global Business Association (P&GBA), Seoul

Suggested Citation: Ji, Hyunmi (2018) : The value relevance and reliability of intangible assets: Evidence from South Korea, Global Business & Finance Review (GBFR), ISSN 2384-1648, People & Global Business Association (P&GBA), Seoul, Vol. 23, Iss. 2, pp. 98-107, <https://doi.org/10.17549/gbfr.2018.23.2.98>

This Version is available at:

<https://hdl.handle.net/10419/224404>

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The Value Relevance and Reliability of Intangible Assets: Evidence from South Korea

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ABSTRACT

This study empirically verifies how the value relevance of intangible asset accounting information is affected by the degree of information reliability of intangible assets. The study period was from 2011 to 2016 when Korea International Financial Reporting Standards (K-IFRS) were applied, and the sample companies were 8,174 firm-year observations.

Empirical analysis shows that investors have relatively positive evaluations of intangible assets in the capital market when intangible assets are highly reliable. This implies that the reliability of intangible assets is significant information to help evaluate the relationship between accounting information and stock prices.

The contribution of this study is as follows. First, it is confirmed that the usefulness of accounting information can be enhanced if the reliability of intangible assets is guaranteed. Second, reasonable decision-making can be induced in the use of intangible asset accounting information in accounting decision making, supervision, and investment decision-making. Third, it can be recognized by managers that the value of intangible assets that are highly reliable can be recognized in the capital market.

Keywords: Intangible Assets, Reliability, Value Relevance, International Financial Reporting Standards

I. Introduction

This study examines empirically the effect of the reliability of intangible assets on the value relevance of accounting information. Since 2011, South Korea has introduced International Financial Reporting Standards (IFRS).

Under K-IFRS, all internally generated intangible

assets, such as research expenses, ordinary development expenses, advertising expenses, and education and training expenses, are subject to expense. On the other hand, separately identifiable and externally acquired intangible assets are required to be recognized as assets because they meet the definition of an asset. Goodwill is also recognized internally for goodwill as an expense and goodwill acquired outside of the business combination is recognized as an asset. K-IFRS strictly limits the definition and recognition requirements of intangible assets.

The reason for restricting the definition and recognition requirements of intangible assets is as follows. There is a great deal of self-discipline in

Received: Apr. 2, 2018; Revised: Jun. 19, 2018; Accepted: Jun. 29, 2018

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accounting for intangible assets, such as recognition of excess assets. This study examines the issue of accounting discretion of internally generated intangible assets. Intangible assets acquired from outside are subject to objectivity in recognition and measurement, but internally generated intangible assets may be recognized as assets or expense at management's discretion. If the total assets excluding intangible assets are over total liabilities, the manager would not recognize the asset excessively even though it did not have the definition and recognition requirements of the intangible asset. In this case, the intangible assets shown in the financial statements can be considered highly reliable. That is, the reliability of information on intangible assets will be high.

According to previous research, intangible asset accounting information has a value relevance with share price. In particular, the value relevance of intangible asset has been higher since the introduction of IFRS (Chalmers et al., 2008; Jean-Michel et al., 2011; Aboody and Lev, 1998; Ritter and Wells, 2006). On the other hand, some precedent studies report that the value relevance of intangible asset has been lowered since the introduction of IFRS. In other words, the value relevance of intangible assets after the introduction of IFRS appears mixed (Xu-Dong and Wei, 2014).

Intangible assets are characterized by the absence of physical entities and relatively high uncertainty about future economic benefits. As we have seen, intangible assets are assets that can be easily debated about the judgment and measurement of assets. In other words, although there are not enough definition and recognition requirements of intangible assets, there is a lot of self-discipline in accounting. In addition, although there are signs of impairment of intangible assets, there is a high possibility of accounting errors such as not impairing them in a timely manner.

Therefore, users of financial information will want more reliable information on intangible assets. The market response will vary depending on the reliability of intangible assets. Because of the nature of these intangible assets, the results of studies showing that the value relevance of intangible assets has increased

after IFRS and the results of studies showing that value relevance has decreased are mixed.

In this context, this study empirically examines how the value relevance of intangible asset accounting information is affected by the degree of reliability of information on intangible assets. The reliability of intangible assets is measured by subtracting total liabilities from total assets excluding intangible assets.

If the amount of total assets excluding intangible assets minus gross debt is more than '0', it means that total assets excluding intangible assets are larger than total liabilities. This means that total assets excluding intangible assets can cover total liabilities. In this case, the manager would not recognize the asset excessively even though it did not have the definition and recognition requirements of the intangible asset. Therefore, the reliability of information on intangible assets will be high.

If the amount of total assets excluding intangible assets minus total debt is less than '0', it means that total assets excluding intangible assets are less than total liabilities. This means that total assets excluding intangible assets cannot cover total liabilities. In this case, the manager would not be able to identify and recognize the intangible asset, but would be incentive to recognize it excessively. Therefore, the reliability of information about intangible assets will be lowered.

In summary, if the amount of total assets excluding total liabilities minus intangible assets is positive (+), it is estimated that intangible assets are highly reliable. On the contrary, if the amount of total assets excluding the intangible assets minus the total liabilities is negative (-), the reliability of the intangible assets is measured as low. Therefore, if the reliability of the intangible asset is high, it is verified that the reliability of the intangible asset significantly affects the value relevance of the accounting information.

This study examines the period from 2011 to 2016 when Korea International Financial Reporting Standards (K-IFRS) is applied, and the sample companies are 8,174 companies that meet the sample selection criteria of KOSPI and KOSDAQ market.

It was verified that the reliability of intangible assets is significant information to help evaluate the relationship

between accounting information and stock price. These results are the same as the results of analyzing KOSPI and KOSDAQ market listed companies.

The contribution of this study is as follows. First, if the reliability of intangible assets is secured, the usefulness as accounting information can be enhanced. This conclusion provides useful implications for capital market investors. Second, it can provide useful information on how the value of intangible assets is determined by accounting standard setters, supervisory authorities, and users of financial information. This could lead to rational decision-making in the formulation of accounting standards, supervision, and use in investment decisions. Third, it can provide useful information about which accounting policies should be selected in relation to intangible assets to the entity that prepares the financial statements. It is possible to induce more useful information by recognizing to managers that the value of intangible assets with high reliability can be recognized in the capital market.

This study is organized as follows. Section 2 reviews the contents of the intangible assets statement set out in K-IFRS and existing literature and then develops arguments for our hypothesis. Section 3 describes the research design and samples. Section 4 presents descriptive statistics and the results of empirical tests. Section 5 summarizes the conclusions and limitations.

II. Background and hypothesis

A. K-IFRS No. 1038 Intangible asset

Korean IFRS No. 1038 Intangible Assets are defined as an identifiable non-monetary asset that does not have physical substance. Types of intangible assets include patents, franchises, copyrights, and development costs. Intangible assets that are individually identifiable and acquired from outside are recognized as assets because they meet the definition of an asset. However, internally generated intangible assets such as research expenses, ordinary development expenses, advertising expenses, and education and training expenses are

not identifiable and therefore all are accounted for as expenses.

On the other hand, goodwill is not an identifiable intangible asset but requires goodwill acquired outside of the business combination to be recognized as an asset in accordance with K-IFRS No. 1103 Business Combination. Goodwill is not an individually identifiable asset, but is recognized as an intangible asset because it is considered to have future economic benefits from a business combination. Goodwill also requires internally generated goodwill to be recognized as an expense.

As such, K-IFRS No. 1038 Intangible Assets strictly limits the definition and recognition requirements of intangible assets.

51. It is sometimes difficult to assess whether an internally generated intangible asset qualifies for recognition because of problems in:

- (a) identifying whether and when there is an identifiable asset that will generate expected future economic benefits; and
- (b) determining the cost of the asset reliably. In some cases, the cost of generating an intangible asset internally cannot be distinguished from the cost of maintaining or enhancing the entity's internally generated goodwill or of running day-to-day operations. Therefore, in addition to complying with the general requirements for the recognition and initial measurement of an intangible asset, an entity applies the requirements and guidance in paragraphs 52-67 to all internally generated intangible assets.

52. To assess whether an internally generated intangible asset meets the criteria for recognition, an entity classifies the generation of the asset into:

- (a) a research phase; and
- (b) a development phase.

Although the terms 'research' and 'development' are defined, the terms 'research phase' and 'development phase' have a broader meaning for the purpose of this Standard.

53. If an entity cannot distinguish the research phase from the development phase of an internal project to create an intangible asset, the entity treats the expenditure on that project as if it were

incurred in the research phase only.

54. No intangible asset arising from research (or from the research phase of an internal project) shall be recognised. Expenditure on research (or on the research phase of an internal project) shall be recognised as an expense when it is incurred.

55. In the research phase of an internal project, an entity cannot demonstrate that an intangible asset exists that will generate probable future economic benefits. Therefore, this expenditure is recognised as an expense when it is incurred.

56. Examples of research activities are:

- (a) activities aimed at obtaining new knowledge;
- (b) the search for, evaluation and final selection of, applications of research findings or other knowledge;
- (c) the search for alternatives for materials, devices, products, processes, systems or services; and
- (d) the formulation, design, evaluation and final selection of possible alternatives for new or improved materials, devices, products, processes, systems or services.

57. An intangible asset arising from development (or from the development phase of an internal project) shall be recognised if, and only if, an entity can demonstrate all of the following:

- (a) the technical feasibility of completing the intangible asset so that it will be available for use or sale.
- (b) its intention to complete the intangible asset and use or sell it.
- (c) its ability to use or sell the intangible asset.
- (d) how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset.
- (e) the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- (f) its ability to measure reliably the expenditure attributable to the intangible asset during its

development.

58. In the development phase of an internal project, an entity can, in some instances, identify an intangible asset and demonstrate that the asset will generate probable future economic benefits. This is because the development phase of a project is further advanced than the research phase.

The reason for limiting the quality of intangible assets by strictly restricting the definition and recognition requirements of intangible assets is as follows. This is because, despite the lack of definition and recognition requirements for intangible assets, there is a great deal of self-discipline in accounting for intangible assets, such as recognition of excess assets. Therefore, the higher the reliability of information on intangible assets is, the higher the value relevance of accounting information on intangible assets is.

B. Prior research and hypothesis

In a study such as Aboody and Lev (1998), Ritter and Wells (2006), Chalmers et al. (2008) and Jean-Michel et al. (2011), the value relevance of intangible assets increased after the introduction of IFRS.

Aboody and Lev (1998) verified that intangible assets are highly correlated with stock prices when software is included as an intangible asset. It also verified that software recognized as an intangible asset affects future profits. Ritter and Wells (2006) have verified that there is a significant positive relationship between voluntary perceived intangible assets and stock prices. Also, there is a positive relationship between voluntary perceived intangible assets and future earnings. In a study by Chalmers et al. (2008), the change from Local-GAAP to IFRS increased the value relevance of intangible assets (goodwill), but did not affect value relevance for intangible assets other than goodwill. Jean-Michel et al. (2011) have verified that the change from Local-GAAP to IFRS increases the carrying amount of intangible assets and that intangible assets have more information value in explaining stock prices

and stock price returns.

On the other hand, some precedent studies report that the value relevance of intangible assets has been lowered since the introduction of IFRS. In the study of Xu-Dong and Wei (2014), it is found that the value relevance of intangible assets exists whether applying local-GAAP or IFRS. On the contrary, if IFRS is applied, the value relevance of intangible assets is lower than that of applying local GAAP.

Accounting information describes the stock price of the company. In particular, net profit has a positive correlation with stock price, and net profit information is useful for decision making of accounting information users (Ball and Brown, 1968 ; Beaver et al., 1980; Kriengkai and Orapin, 2015). Risk, profit sustainability, firm size, debt ratio, growth potential, and predictability of earnings have an additional effect on the earnings response coefficient for the stock price of the net profit (Collins and Kothari, 1989; Dhaliwal et al. al., 1991). The higher the quality of the net profit, the more positive the stock price response to the profit (Imhoff, 1992). This means that the higher the reliability of accounting information, the more positive the stock price response to accounting information.

Internally generated intangible assets have the discretion of accounting. Therefore, IFRS strictly restrict the recognition requirements of internally generated intangible assets. This study examines the issue of accounting discretion of internally generated intangible assets. Intangible assets acquired from outside are subject to objectivity in recognition and measurement, but internally generated intangible assets may be recognized as assets or expense at management's discretion. If the total assets excluding intangible assets are over total liabilities, the manager would not recognize the asset excessively even though it did not have the definition and recognition requirements of the intangible asset. In this case, the intangible assets shown in the financial statements can be considered highly reliable. That is, the reliability of information about intangible assets will be high.

The following is a summary of the above accounting standards and previous research. There is a great deal of voluntary accounting for intangible assets,

such as recognizing excess assets even though they do not have the definition and recognition requirements of intangible assets. When the reliability of accounting information on intangible assets is high, the value relevance will be increase. Based on the above background, the following hypotheses are set in this study.

Hypothesis: In the case of firms with high reliability of intangible assets, the value relevance of intangible asset to the stock price will be higher than those with low reliability.

III. Research design and sample

A. Model specification

The purpose of this study is to test whether the value relevance of intangible asset is relatively higher for firms with high reliability for intangible assets compared to firms with low reliability. The reliability of intangible assets is measured as follows. The fact that the amount of total assets excluding intangible assets minus total liabilities is greater than 0 means that total assets excluding intangible assets are larger than total liabilities. This means that total assets excluding intangible assets can cover total liabilities. In this case, the manager would not recognize the asset excessively even though it did not have the definition and recognition requirements of the intangible asset. Therefore, the reliability of information on intangible assets will be high.

On the other hand, the fact that total assets excluding intangible assets minus total liabilities is less than 0 means that total assets excluding intangible assets are smaller than total liabilities. This means that total assets excluding intangible assets cannot cover total liabilities. In this case, the manager would not be able to identify and recognize the intangible asset, but would be incentive to recognize it excessively. Therefore, the reliability of information about intangible assets will be low.

For the hypothesis test of this study, the following

equation (1) was set. This study follows the price-earnings model, as used by Ohlson (1995), where prices are regressed on both the book value of the equity and earnings. According to Ohlson (1995), the value of a firm's equity can be expressed as a function of its book value and earnings, as follows: (Anh, 2017; Collins et al., 1997; Collins et al., 1999; Setianingtyas et al., 2015).

$$P_{i,t} = \alpha + \beta_1 BV_{i,t} + \beta_2 EPS_{i,t} + \varepsilon_{i,t} \quad (1)$$

where,

$P_{i,t}$: the price of a share of firms i three months after fiscal year-end t .

$BV_{i,t}$: the book value of equity per share of firm i at the end of year t .

$EPS_{i,t}$: the earnings per share of firm i during year t .

$\varepsilon_{i,t}$: other value relevant information of firm i year t .

The value relevance of the book value and earnings is represented by the coefficient of these variables. The coefficient of the book value and earnings depends on how well a firm's book value and earnings can explain stock prices.

This study further extends an analysis by running a regression on the following extended model (2), which includes RED as a dummy variable, and its interaction with intangible assets:

$$P_{i,t} = \alpha + \beta_1 BVIA_{i,t} + \beta_2 IA_{i,t} + \beta_3 EPS_{i,t} + \beta_4 IA_{i,t} * RED + \beta_5 YD + \beta_6 IND + \varepsilon_{i,t} \quad (2)$$

where,

$P_{i,t}$: the price of a share of firms i three months after fiscal year-end t .

$BVIA_{i,t}$: the book value of equity per share excluding intangible assets of firm i at the end of year t .

$IA_{i,t}$: the book value of intangible assets per share of firm i at the end of year t .

$EPS_{i,t}$: the earnings per share of firm i during the year t .

RED: 1 if the amount of total assets excluding intangible assets minus gross liabilities is greater than 0, otherwise 0.

YD: year dummy.

IND: industry dummy.

$\varepsilon_{i,t}$: other value relevant information of firm i for year t .

The above equation (2) is set up to test how the reliability of intangible asset affects the value relevance of intangible assets in explaining stock prices. If the value of the regression coefficient (β_4) of the interaction variable ($IA * RED$) between the dummy variable (RED) indicating the reliability of the intangible asset and the book value of the intangible asset (IA), the hypothesis is supported. In other words, it can be interpreted that the value relevance of intangible asset is higher when the intangible assets is more reliable.

B. Data and sample selection

IFRS adoption became effective on January 1, 2011, and the first annual financial statements prepared using IFRS are dated 31 December, 2011. Financial data from 2011 to 2016 was collected for firms listed on the Korean Stock Exchange, as obtained from the KIS-Value Database. The data excluded firms in the banking industry and due to other issues of administration to ensure heterogeneity. Financial institutions are different from general manufacturing companies in their financial statements and in the nature of their accounts. Therefore, this study excluded those from the sample to be verified. The method to select these samples was also applied following the procedures.

- ① Listed companies in December that can obtain financial data from KIS Value
- ② Companies not belonging to financial sector
- ③ Companies that do not belong in issues for administration

Finally, this study deletes firm-year observations that are outliers in the top and bottom 1% of independent variables. Table 1 shows 8,184 firm-year observations that were the final selections.

Table 1. Criteria to select the sample

Selection criteria	Number of observations
1. KOSPI and KOSDAQ listed companies (2011 ~ 2016), which are not included in the financial sector	10,902
2. Companies that cannot obtain financial information necessary for empirical analysis	(2,442)
3. Excluded from the top and bottom 1% of outlier samples removed	(276)
Firm-year final selections for the empirical test	8,184

IV. Results

A. Descriptive statistics

Panel A of Table 2 shows the descriptive statistics for the variables used in the empirical analysis. In the whole sample (KOSPI and KOSDAQ), the average stock price (P) of the common stock was 21,059 and the median was 6,340. Except for intangible assets, the average of shareholders' equity ($BVIA$) and earnings per share (EPS) was 16,771 and 932, respectively, with median values of 5,348 and 251, respectively.

Both of these variables are somewhat larger than the median. This is due to the fact that the share prices, shareholders' equity, and earnings per share of some of the sample firms are relatively higher

than those of other companies. The average book value of intangible assets per share (IA) was 644 and the median was 134.

Panel B in Table 2 shows the correlation between the variables used in the empirical analysis. The results of this study shows that there is a significant positive correlation between shareholders' equity excluding intangible assets ($BVIA$) and intangible assets (IA) and earnings per share (EPS) with stock price (P).

B. Regression on the value relevance

Table 3 shows the results of test on the hypotheses. As a result of the empirical analysis on the KOSPI market listed companies and the KOSDAQ market

Table 2. Univariate statistics for sample observations and variable definitions

Panel A: Description of sample					
Variables	Mean	Std. Dev.	Min	Median	Max
F	21,059	52,929	62	6,340	1,158,000
$BVLA$	16,771	34,480	-12,632	5,348	330,194
LA	644	2,874	0	134	82,206
EPS	932	2,969	-14,432	251	31,751
Panel B: Pearson correlation coefficients for regression variables					
Variables	F	$BVLA$	LA	EPS	
F	1				
$BVLA$	0.620***	1			
LA	0.267***	0.261***	1		
EPS	0.604***	0.629***	0.247***	1	

Variable definitions:

$P_{i,t}$: the price of a share of firms i three months after fiscal year-end t .

$BVIA_{i,t}$: the book value of equity per share excluding intangible assets of firm i at the end of year t .

$IA_{i,t}$: the book value of intangible assets per share of firm i at the end of year t .

$EPS_{i,t}$: the earnings per share of firm i during the year t .

All variables measured as native currency (won)

b) ***, **, *: Significant at the 0.01, 0.05, 0.1 levels.

Table 3. The effect of the reliability of intangible assets on the value relevance of accounting information (total sample)

$$P_{i,t} = \alpha + \beta_1 BVIA_{i,t} + \beta_2 IA_{i,t} + \beta_3 EPS_{i,t} + \beta_4 IA_{i,t} * RED + \beta_5 YD + \beta_6 IND + \varepsilon_{i,t} \quad (2)$$

Variables	Pred. sign	Coefficients (t-value)
		Total sample
BVIA	(+)	0.596 (34.90)***
IA	(+)	0.495 (1.92)**
EPS	(+)	5.877 (31.56)***
IA*RED	(+)	1.536 (4.79)***
YD(Year Dummy)		Included
IND(Industry Dummy)		Included
Adjusted R ²		0.4926
F-Stats		194.73***
Number of observations		8,184

a) Variables are defined in Table 2.

b) ***, **, *: Significant at the 0.01, 0.05, and 0.1 levels, respectively.

listed companies, the regression coefficients of the book value of equity excluding the intangible assets (BVIA) and intangible assets (IA) are both positive. And the regression coefficient of the earnings per share (EPS) is also a significant positive value, which is consistent with previous studies.

The reliability of an intangible asset is measured by a dummy variable of 1 if the amount of total assets excluding intangible assets minus total liabilities is greater than 0, and 0 otherwise. Empirical results show that the regression coefficient (β_4) of the interaction variable ($IA * RED$) between the dummy variable (RED) and the book value of the intangible asset (IA) shows a significant positive value.

In other words, if intangible assets are highly reliable, investors can see relatively positive evaluations of intangible assets in the capital market. This implies that the higher the reliability of intangible assets is, the higher the value relevance of intangible asset and stock price is.

C. Further analysis

Previous studies have shown that the KOSPI

Table 4. The effect of the reliability of intangible assets on the value relevance of accounting information (in the divided sample, KOSPI and KOSDAQ)

$$P_{i,t} = \alpha + \beta_1 BVIA_{i,t} + \beta_2 IA_{i,t} + \beta_3 EPS_{i,t} + \beta_4 IA_{i,t} * RED + \beta_5 YD + \beta_6 IND + \varepsilon_{i,t} \quad (2)$$

Variables	Pred. sign	Coefficients (t-value)	
		Sub-groups divided by stock markets	
		KOSPI	KOSDAQ
BVIA	(+)	0.599 (21.72)***	0.556 (20.20)***
IA	(+)	0.545 (1.43)	20703 (0.30)
EPS	(+)	5.997 (19.49)***	4.779 (26.83)***
IA*RED	(+)	1.214 (2.50)***	3.964 (0.44)
YD(Year Dummy)		Included	Included
IND(Industry Dummy)		Included	Included
Adjusted R ²		0.4760	0.5245
F-Stats		78.05***	129.82***
Number of observations		3,394	4,790

a) Variables are defined in Table 2.

b) ***, **, *: Significant at the 0.01, 0.05, and 0.1 levels, respectively.

market has higher quality and reliability of accounting information than the KOSDAQ market (Kim et al., 2015). In order to verify this market difference, the sample was divided into the KOSPI market and the KOSDAQ market.

Table 4 shows the total sample to be analyzed as the companies listed on the KOSPI market and those listed on the KOSDAQ market. The empirical results show that the regression coefficient (β_4) of the interaction variable ($IA * RED$) between the dummy variable (RED) and the book value of the intangible asset (IA), which are representative of the reliability of the intangible asset, shows a significant positive value.

On the other hand, in the KOSDAQ market, the regression coefficient (β_4) of the interaction variable ($IA * RED$) between the dummy variable (RED) and the book value of the intangible asset (IA) indicating the reliability of the intangible asset is not significant.

This is because the reliability of intangible assets affects the value relevance of intangible assets in KOSPI listed companies, but the reliability of intangible assets in KOSDAQ listed companies does not affect the value relevance of intangible assets. This is because the reliability of intangible assets affects the value relevance of intangible assets in KOSPI listed companies, but the reliability of intangible assets in KOSDAQ listed companies does not affect the value relevance of intangible assets.

The listing of KOSDAQ listed companies has a lot of voluntary nature in the accounting of intangible assets, and the overall credibility of accounting information is deteriorated, such as timely damage is not processed even though there are signs of damage to intangible assets.

V. Conclusions

This study empirically examines how the value relevance of intangible asset accounting information is affected by the degree of information reliability of intangible assets. The reliability of intangible assets is measured by subtracting total liabilities from total assets excluding intangible assets.

The sample period is from 2011 to 2016 when Korea International Financial Reporting Standards (K-IFRS) is applied, and the sample companies to be studied are 8,184 firm-year observations that meet the sample selection criteria of the KOSPI market and the KOSDAQ market.

As a result of the empirical analysis on the total sample, it is found that investors have a relatively positive evaluation of intangible assets in the capital market when the reliability of intangible assets is high. This implies that the higher the reliability of intangible assets is, the higher the value relevance between intangible assets and stock price is. The degree of reliability of intangible assets is significant information to help evaluate the relationship between accounting information and stock price.

In the result of further analysis, the sample to be verified was divided into KOSPI market listed companies and KOSDAQ market listed companies. The empirical results show that the high reliability of intangible assets in KOSPI listed companies responds positively to the capital market. However, in the KOSDAQ listed companies, the reliability of intangible assets does not affect the value relevance of intangible assets.

The contribution of this study is as follows. First, if the reliability of intangible assets is secured, the usefulness as accounting information can be enhanced. This conclusion provides useful implications for capital market investors. Second, based on the results of this study, it will be possible to make rational decision-making in the use of intangible asset accounting information in accounting decision making, supervision, and investment decision making process. Third, it is possible to induce more useful information by recognizing to managers that the value of intangible assets with high reliability can be recognized in the capital market. The limitation of this study is that the sample period is short-term. In Korea, the period of applying IFRS is short-term. By analyzing the long-term sample period in the future, the research results will be strengthened.

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