Does amortization of goodwill effect on companies' profits and future cash flows?

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ABSTRACT

The International Accounting Standards Board (IASB) will discuss whether or not accounting rules for M&A change, and it plans to draw a conclusion in 2021. In view of this fact, it is considered that a series of large M&A have significant effects on corporate earnings worldwide. This paper examines whether the amortization and/or non-amortization of goodwill affect companies' earnings and future cash flow, an analysis for which there are two reasons. First, IFRS initiates the debate on the premise of goodwill amortization. If goodwill is amortized, it will have a profound impact on corporate profits and cash flow. Second, M&A has recently increased in Japan due to the increase in retained earnings and because IFRS has not requested goodwill amortization. The conclusion is as follows: First, it has become clear that legal retained earnings accelerate M&A because they affect the future goodwill along both accounting standards. Next, the results revealed that the amortization of goodwill corresponds with the future ROA in conformity with Japanese accounting standards. On the other hand, this study did not determine that goodwill affects ROA in IFRS companies. Particularly, IFRS firms invested greater amounts of money than did Japanese accounting firms. Therefore, IFRS firms' goodwill might not be effective applied to M&A within four years

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Introduction

Due to the declining population, various adverse effects are emerging in Japan. For example, the Ministry of Finance is concerned that tax revenue will decline. The Ministry of Health, Labor, and Welfare is concerned about the increase in social security expenses reserved for elderly people. These effects are resulting in increased consumption tax. The increasing consumption tax has caused the economy to stagnate, and the state of this deflationary economy has yet to be resolved. The current Japanese economy is in a negative spiral. To restore the economy, the Bank of Japan introduced a zero-interest rate policy to try stimulating consumption; nevertheless, the Japanese economy remains stagnant. From such an economic background, Japanese companies began focusing on strengthening their overseas business.

Japanese companies are currently accelerating merger and acquisition (M&A) such that it may expand overseas markets. For instance, the amount of M&A generated by Japanese companies totalled \$122 million during the first half of 2018, which was recorded as the highest amount ever generated in Japan. This amount exceeded the European firms' M&A amount (The Nikkei, 2018 September 13). According to Dealogic, international M&A generated by Japan, US, and European Union (EU) totalled \$381.6 billion during the first half of 2018. The share was 46% in the US, 29% in Japan, and 25% in EU.

Moreover, the amount of M&A generated by Japanese companies was \$170 billion in 2016, and the acquisition of overseas companies was 63% (Kikuchi, 2017). M&A generated by Japanese companies was 3,261 transactions in 2017, and the amount of M&A involving Japanese firms reached a record high. This record was 23.5% higher than the previous year's total in 2016. Within the past decade, the growth rate of M&A generated by Japanese companies was the highest in Japan. M&A can have a profound effect on a company's growth prospects and long-term outlook; thus, M&A is purposed to create synergies by collaborating on various projects with multiple companies. Eccles, Lanes, & Wilson (1999) and Eccles & Krzus (2014) present the following five sources as M&A

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synergies: costs, increasing sales, business process improvement, financial engineering, and tax saving. However, Eccles et al. (1999) and Eccles & Krzus (2014) 's five sources are based on the analysis of companies in the US.

Goodwill arises when M&A is administrated. This goodwill represents the excess of purchase price over the fair market value of a company's net assets. It is classified as an intangible asset on the balance sheet because it can be neither seen nor touched. Under the US Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS), goodwill is never amortized (Deloitte, 2016). Rather, management is responsible for valuing goodwill every year and valuing whether or not an impairment is required. If the fair market value drops below the historical cost (what goodwill was purchased for), an impairment must be recorded to bring it down to its fair market value. However, an increase in the fair market value would not be accounted for in the financial statements.

On the other hand, unlike the IFRS, Japanese accounting standards require companies to amortize goodwill equally on an annual basis and to complete the amortization process within twenty years. Goodwill impairment is only recognised if the value of that unit of business is less than that of the business's carrying amount on the balance sheet.

While Japanese accounting standards record amortization expenses of goodwill every year, Financial Accounting Standards in Taiwan, US GAAP, and IFRS are not required to record amortization expenses of goodwill every year. As such, for instance, if M&A were executed with the similar prices, the Japanese accounting standards will record fewer profits of the accounting period than those of the other accounting standards.

Recently, Japanese companies have frequently conducted M&A because, when using IFRS, it is not necessary that expenses be recorded by the amortization of goodwill for every accounting period. The reason why Japanese firms conduct M&A is so they can benefit from IFRS rather than from Eccles et al., (1999) and Eccles & Krzus (2014) theory.

However, the International Accounting Standards Board (IASB) will discuss whether or not accounting rules for M&A change, and it plans to draw a conclusion in 2021 (The Nikkei, 2018 September 13). In view of this fact, it is considered that a series of large M&A have significant effects on corporate earnings worldwide. If IFRS requests the amortization of goodwill, the impact on corporate performance will be immeasurable. IFRS has been adopted by more than 120 Asian and European countries. In Japan, large listed firms such as Takeda Pharmaceutical Company Ltd., Mitsubishi Heavy Industries Ltd., and SoftBank Group Corp. are in compliance with IFRS. These large companies carry out large M&A. Approximately 160 Japanese companies with IFRS recognized goodwill on their balance sheets at approximately \$140 billion in 2017, while the major 600 companies in Europe recorded goodwill at \$2,400 billion during the same year. If goodwill amortization for twenty years is introduced, the total amortization expenses of goodwill will be \$140 billion annually in both Japan and Europe (The Nikkei, 2018 September 13). Moreover, 100 major companies in Mainland of China possess a goodwill of about \$100 billion on their balance sheets. Mainland of China emphasizes compatibility with IFRS. The impact on earnings is inevitable if IFRS requests the amortization of goodwill. On the other hand, large M&A is active in the US, where goodwill has been recorded at \$3,400 billion by 500 major companies. The amortization of goodwill is unnecessary under US GAAP. However, if IFRS requests the amortization of goodwill, it will have more direct significant impact on corporate profits in areas such as Europe, the US, Taiwan, Japan, and Mainland of China.

Therefore, this paper examines whether the amortization and/or non-amortization of goodwill affect companies' earnings and future cash flow, an analysis for which there are two reasons. First, IFRS initiates the debate on the premise of goodwill amortization. If goodwill is amortized, it will have a profound impact on corporate profits and cash flow. Second, M&A has recently increased in Japan due to the increase in retained earnings and because IFRS has not requested goodwill amortization. This paper serves to investigate the effect resulting from IFRS requesting the amortization of goodwill in advance. The amortization of goodwill improves the predictability of corporate finance, and in doing so, it serves as an advantage for investors. On the other hand, there also exists a reason that the amortization of goodwill increases the cost of M&A and impedes business activities. Therefore, twists and turns will also be anticipated in discussions concerning the review of the amortization of goodwill in IFRS. This is a necessary research direction that may minimize the influence of goodwill amortization when IFRS decides to implement the process.

Literature Review

The liquidity of Japanese firms has risen since 2005. The liquidity in hand within the bubble economy in 1989 was \$1,980 billion, while the liquidity in hand was \$2,180 billion in 2016. It can be said that large listed Japanese firms possess ample money. This liquidity in hand is referred to as retained earnings. The companies purchase their own shares or distribute dividends to shareholders by increasing dividends with the retained earnings. However, companies tend to invest for growth rather than for dividends due to the recent low growth period in Japan, and they use retained earnings rather than capital investment for M&A (Maekawa, 2017).

Why have companies used retained earnings for M&A? During the bubble economy, companies invested surplus funds into stocks and real estate. However, due to the collapse of the bubble economy, the companies lost money through both real estate and stock investments. Current companies are also refraining from these investment directions to avoid losing money. These companies that incurred great costs in infrastructure as well as research and development activities began to acquire foreign companies. In recent years, it has been anticipated that M&A will become more advantageous in terms of cost strategy than will companies that conduct

research and development independently. These companies execute M&A by using retained earnings to bring about innovation and create future value. In other words, it seems that companies' retained earnings motivate M&A.

Problems with IFRS regarding goodwill recognition

The IFRS was designed as a common global language for business affairs such that company accounts may be understandable and comparable across international boundaries. Current global companies are a consequence of growing international shareholding and trade. The IFRS is particularly important for companies that have dealings in several countries, and it is progressively replacing the many different national accounting standards (Lumen, 2017).

For instance, it is useful for investors to increase comparability among companies, as doing so raises the transparency of financial reporting and improves the quality of accounting information in conformity with IFRS (Barth, Landsman, Lang, & Williams, 2012). Daske (2006) and Daske, Hail, Leuz, & Verdi, (2008) report that IFRS-compliant companies have improved capital market liquidity, reduced capital costs, and increased the value relevance of accounting information.

On the other hand, Ichinomiya (2015) does not deny that IFRS-compliant German companies do not manipulate earnings. The author reports that IFRS is not necessarily a high-quality accounting standard; for instance, prior to IFRS (before the fiscal year ended in March 2011), Japan Tobacco (JT) recognized goodwill amortization expenses as comprising 30–40% of its net income. It can be observed that the amortization of goodwill was a burden on JT's corporate performance. After IFRS was applied (after the fiscal year ended in March 2012), no amortization expenses of goodwill were recorded, and profits were increased by the no amortization expenses. However, the proportion of goodwill in total assets is now increasing. If goodwill is not amortized, then it will continue to be recorded on the balance sheet for an extended period of time. When profit worsens, a lump sum impairment is required. At that time, the net profit will be greatly reduced. Namely, the company must treat all the decreases in value as expenses. The accounting of goodwill under IFRS is highly risky to the enterprise. Ueno (2015) claimed that applying IFRS to enjoy the benefits of an accounting treatment for goodwill may mislead investors' decision making, which may be determined as being earnings manipulation resulting from the change in accounting standards. This method is not desirable for companies to prepare appropriate financial statements.

Issues regarding goodwill

IFRS, Financial Accounting Standards in Taiwan, and US GAAP are different from Japanese accounting standards. The former accounting standards are not required to amortize goodwill on the balance sheet at the time of acquisition. Since these standards do not record amortization expenses of goodwill for each term, profits are not squeezed. EU applied IFRS to listed companies' consolidated financial statements in the region in 2005. Since that time, the movement of applying IFRS has spread on a global scale. For example, Australia, New Zealand, Canada, and Korea, among other regions have applied IFRS. China also applies IFRS substantially as its national accounting standard. In the US, the Securities and Exchange Commission (SEC) has allowed foreign companies to submit financial statements prepared by IFRS as annual reports since 2007. Therefore, IFRS is now a de facto standard across the world.

On the other hand, the treatment of Japanese accounting standards is amortization plus impairment. An acquired company capitalizes the goodwill of the difference between the purchase price and the fair market value of the acquirer, wherein goodwill is claimed as being excess profitability. The excess profitability is the profit generated from goodwill, a profit that must correspond with the amortization of goodwill. Thus, this is the fundamental theory of accounting. Ultimately, this theory aims to lower the cost of goodwill to zero, and this is the matching principle.

Japan had a bitter experience with the introduction of market value accounting from the 1990s to the 2000s. Therefore, the Accounting Standards Board of Japan (ASBJ) requires the amortization of goodwill. Due to market value accounting on the premise of the adoption of IFRS, the fair value valuation of cross-held stock, the market price evaluation of land, and an insufficient accumulation of retirement benefits, among other elements have been pointed out. These market value accounting introductions were mandated by listed companies, and losses were recorded in their income statements. Stock prices had also dropped sharply, thus leading to the 'lost twenty years'. It is easy to imagine that the ASBJ sticks to maintaining the amortization of goodwill such that it never experiences such hardships again. Under Japanese accounting standards, the company records goodwill expenses every term. Therefore, if the purchase price rises, it is natural that expenses will be significantly large for each period.

Currently, one-third of the market capitalization of the shares listed on the first section of the Tokyo Stock Exchange adopted IFRS, wherein the number of listed firms is only 180 companies (Japan Exchange Group, 2018). These firms are not required to amortize goodwill. If these firms do amortize goodwill, the profits incurred by Japanese firms will be affected.

Koiwai (2011) reports that IFRS requires due diligences. Due diligence is either an investigation of a business or person prior to the signing of a contract or an act with a certain standard of care. The IFRS standard may have an impact on contemplated M&A transactions, as potential investors may want to understand the impact associated with applying IFRS 15, and those performing due diligences will likely consider the guidance during their implementation. In fact, the amortization of goodwill is not necessary under IFRS. Therefore, companies adopting IFRS will intensify M&A.

On the other hand, an IFRS firm is not required to amortize; however, if the performance of the acquired company deteriorates, then the company must recognize the impairment loss¹. The impairment loss tends to be executed suddenly and at all times. Therefore, such IFRS accounting treatment poses problems from the perspective of investor protection.

IFRS does not amortize goodwill because it is difficult for companies to rationally estimate the useful life of goodwill (Saito, 2017). Goodwill is the expectation of the acquisition company for its future results. As this expectation turns into profit, the amount invested in goodwill is collected. Japanese accounting standards involve recognizing the collection of this investment through the amortization of goodwill. However, IFRS prohibits the amortization of goodwill, and thus it may deviate from accounting theory.

Although firms amortize goodwill evenly, there exists the opinion that investors do not consider the amortization of goodwill in the evaluation of corporate value. The IASB has also repeated its claim as a basis for not amortizing goodwill. Even if the goodwill amortization were performed, the investors would add back the amortization amount to the operating profit in order to evaluate companies. There exists the possibility that net income may change drastically depending on whether the company chooses either IFRS or the Japanese accounting standard. Companies that do frequent acquisitions benefit when they adopt IFRS because they eliminate the periodic amortization expenses of goodwill and raise profits. Accounting for the non-amortization of goodwill is expected to depress companies' profits in the short term.

The effect of goodwill

M&A affects cash flow, creates funds, and urges the next M&A. The success or failure of M&A affects the return on assets (ROA). ROA is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient the company's management is in using its assets to generate earnings. ROA is displayed as a percentage and is calculated as $ROA = \text{Net Income} / \text{Total Assets}$.

Maekawa (2017) determined that M&A will increase the amount of the acquired company's total capital. When the acquirer cannot overcome the amount paid by the acquisition, the profit does not increase. Therefore, the ratio of ROA falls; in other words, ROA numbers are figures that evaluate acquisitions, and both the success and failure of M&A directly influence ROA.

On the other hand, Okuhara (2017) reports that a large amount of goodwill has a negative impact on ROA because the amount of expenditure does not contribute to profit.

M&A also affects cash flow, which allows no room for manipulation because it understands the movement of the company's money. Therefore, the success or failure of M&A is determined from cash flow. It is thought that the effect of M&A will generate future cash flow. In other words, if M&A succeeds, it increases future cash flow, which is ultimately thought to lead to future M&A. Saito (2017) determined that investment expenditure and future cash flow are deeply intertwined. The value of investment is the expected future cash flow; if there is cash flow information, then accounting profit information is unnecessary from the very beginning. However, under no amortization conditions in IFRS, the matching principle is unnecessary for accounting, and the value evaluation of costs and revenues has no meaning in IFRS (Saito, 2017). Namely, Saito (2017) criticises the amortization of goodwill in IFRS.

The problem with impairment

An asset's value is not constant. When corporate performances are poor, the corporation must evaluate its asset value; this evaluation is called impairment. While Japanese accounting standards require that assets are periodically amortized and impaired within twenty years, IFRS requires that only goodwill receive impairment treatment, and thus periodic amortization is not required. Impairment value is decided through the impairment test every term. Therefore, impairment will not be made, and goodwill will be permanently fixated on the balance sheet. In recent years, a large amount of impairment has been suddenly recognized. Managers have tended to postpone the recognition of impairment loss on their income statements. Through a strict impairment approach, impairing large amounts of goodwill may suddenly become obvious. Therefore, if the company is small, it will either restructure or go bankrupt. The impairment losses affect both the company and the economy. When impairment loss is finally recognized, it may be too late to recover the loss. If amortization expenses are performed annually, management can judge whether profits exceed amortization expenses of goodwill. Therefore, it is considered that the amortization of goodwill is valuable for managerial decision making.

Above these discussion, I set for the following hypotheses:

Hypothesis 1: Companies' retained earnings affect the future amount of goodwill.

Hypothesis 2: Goodwill affects ROA.

Hypothesis 3: Amortization expenses of goodwill affects ROA.

Hypothesis 4: Goodwill affects future cash flow.

¹ IAS 36 Impairment of Assets seeks to ensure that an entity's assets are not carried at more than their recoverable amount (i.e. the higher of fair value less costs of disposal and value in use). With the exception of goodwill and certain intangible assets for which an annual impairment test is required, entities are required to conduct impairment tests where there is an indication of impairment of an asset, and the test may be conducted for a 'cash-generating unit' where an asset does not generate cash inflows that are largely independent of those from other assets.

Hypothesis 5: Amortization expenses of goodwill affects future cash flow.

Hypothesis 6: Accounting for the non-amortization of goodwill depresses companies' profits.

Research and Methodology

Sample selection

For this study, our sample consists of companies listed on the Tokyo Stock Exchange in Japan from 2008 to 2018 and is analysed using the following criteria:

1. The companies must comply with Japanese accounting standards or IFRS;
2. The companies must have recognized goodwill on their balance sheets;
3. The companies must have recognized amortization of goodwill on their income statements;
4. The companies' fiscal year must start on April 1 and end on March 31 the following year.

The firms' data was obtained from the EOL database, and each firm's financial data was collected from its consolidated financial statements. The final sample consists of 449 firms collected during the fiscal year periods for all years ranging from 2008 to 2018, 425 of which comply with Japanese accounting standards and 24 of which comply with IFRS. Only 180 out of 3,640 companies are listed on the Tokyo Stock Exchange as of 31 December 2018. Therefore, the IFRS sample is considered extremely small.

Research Method

I distinguish the amortization of goodwill companies from the Japanese accounting firms as well as the non-amortization of goodwill companies from the IFRS firms. Moreover, this study performs a simple regression analysis to compare Japanese accounting firms with IFRS firms.

Based on the hypotheses set in the previous section, conduct the analysis using the following model. This paper analyses the year during which the legal retained earnings and the impact from that point to four years later were recorded. As for the variable setting, the independent variable is defined as goodwill (*GW*), and the independent variable is defined as legal retained earnings (*RE*).

$$GWit = \alpha + REit + e \dots\dots\dots (1)$$

The research examines whether goodwill and/or amortization expenses of goodwill affect the ROA of the company for up to four years. Here, the non-independent variable is *ROA*, the independent variable is *GW*, and the amortization expense of goodwill is *AM*.

$$ROAit = \alpha + GWit + e \dots\dots\dots (2)$$

$$ROAit = \alpha + AMit + e \dots\dots\dots (3)$$

This paper analyses whether goodwill (*GW*) and/or the amortization expenses of goodwill (*AM*) generate cash flow (*CF*) for up to four years later. Moreover, this paper also examines whether cash flow affects *GW* up to four years later.

In the following Models 4 and 5, the non-independent variable is operating *CF*, the independent variable is *GW*, and the amortization expense of goodwill is *AM*. Finally, in Model 6, the non-independent variable is *GW*, and the independent variable is operating *CF*.

$$CFit = \alpha + GWit + e \dots\dots\dots (4)$$

$$CFit = \alpha + AMit + e \dots\dots\dots (5)$$

$$GWit = \alpha + CFit + e \dots\dots\dots (6)$$

All figures displaying the variables in the above models shall represent the amounts recorded in the financial statements. The table of descriptive statistics and correlations among each company are illustrated below.

Table 1: Descriptive statistics of Japanese accounting firms ($N=425$)

Variables	Mean	Standard Deviation	Minimum	Maximum
<i>RE</i>	71939.81	112995.11	(95764.00)	675410.00
<i>GW_0</i>	9917.04	27308.05	0.00	184407.00
<i>GW_1</i>	10684.06	31488.02	0.00	256957.00
<i>GW_2</i>	11650.47	34604.03	0.00	256957.00
<i>GW_3</i>	13680.90	45809.71	0.00	576009.00
<i>GW_4</i>	15546.97	53937.83	0.00	576009.00
<i>AM</i>	1077.06	2314.20	1.00	15575.00
<i>ROA_0</i>	6.47	6.51	(42.79)	43.44
<i>ROA_1</i>	6.75	6.67	(42.79)	51.14
<i>ROA_2</i>	7.25	6.43	(21.58)	51.14
<i>ROA_3</i>	7.37	6.70	(13.78)	58.00
<i>ROA_4</i>	7.40	6.76	(13.78)	54.19
<i>CF_0</i>	19569.90	41385.02	(29135.00)	482765.00
<i>CF_1</i>	20772.61	44252.55	(38249.00)	482765.00
<i>CF_2</i>	20880.68	42868.67	(43045.00)	482765.00
<i>CF_3</i>	21742.08	43940.22	(43045.00)	482765.00
<i>CF_4</i>	24608.10	51803.21	(43045.00)	482765.00
<i>IM</i>	1113.89	4541.61	0.00	55584.00

Note: The definition of each variable is as follows. *RE* is the amounts of legal retained earnings. *GW* is the amounts of goodwill. *AM* is the amounts of amortization expenses of goodwill. *ROA* shows the percentage of how profitable a company's assets are in generating revenue. *CF* is the amounts of operating cash flow. Finally, *IM* is the amounts of impairment losses. The numbers show as follows: 0 is current year. 1 is next year. 2 is two years later. 3 is three years later. And 4 is four years later.

Table 2 shows the descriptive statistics of IFRS firms.

Table 2: Descriptive statistics of IFRS firms ($N=24$)

Variables	Mean	Standard Deviation	Minimum	Maximum
<i>RE</i>	659801.21	736705.05	(79323.00)	2196651.00
<i>GW_0</i>	378524.75	601274.84	229.00	1584432.00
<i>GW_1</i>	398225.29	633204.25	108.00	1663363.00
<i>GW_2</i>	404680.71	656242.65	588.00	1891210.00
<i>GW_3</i>	456397.92	972395.55	523.00	4175464.00
<i>GW_4</i>	412289.33	972566.31	523.00	4302553.00
<i>ROA_0</i>	11.23	9.13	0.48	44.31
<i>ROA_1</i>	9.06	6.30	(2.89)	27.68
<i>ROA_2</i>	9.02	5.00	1.87	18.20
<i>ROA_3</i>	9.74	6.55	1.84	25.48
<i>ROA_4</i>	8.98	6.59	(4.37)	21.63
<i>CF_0</i>	180876.13	224969.78	363.00	860245.00
<i>CF_1</i>	192420.83	261549.79	93.00	1155174.00
<i>CF_2</i>	191683.33	231817.52	4471.00	940186.00
<i>CF_3</i>	194426.63	314442.97	857.00	1500728.00
<i>CF_4</i>	163608.83	243076.48	(2167.00)	1088623.00
<i>IM</i>	1537.46	4565.39	0.00	19461.00

Note: The definition of each variable is as follows. *RE* is the amounts of legal retained earnings. *GW* is the amounts of goodwill. *ROA* shows the percentage of how profitable a company's assets are in generating revenue. *CF* is the amounts of operating cash flow. Finally, *IM* is the amounts of impairment losses. The numbers show as follows: 0 is current year. 1 is next year. 2 is two years later. 3 is three years later. And 4 is four years later.

First, *RE* is greatly significant in Table 2. The average *RE* of IFRS firms is nine times that of Japanese accounting firms. This indicates that IFRS firms are very large and possess excessive legal *RE*. Next, the amount of *GW* represents that IFRS firms recognized approximately 30 times that of the *GW* recorded on the balance sheets of Japanese accounting firms. In other words, it can be observed that IFRS firms are executing M&A with large amounts of cash.

With regard to *ROA*, general Japanese companies measure in around 5%. The table demonstrates that Japanese accounting firms measure in about 6%, while IFRS firms measure in around 8–11%.

The operating *CF* of IFRS firms is nine times that of Japanese accounting firms. Finally, the amounts of impaired goodwill average roughly the same along both accounting standards. It might be strange that only the impairment amount of IFRS firms is the same as that of Japanese accounting firms. Thus, there remains an issue as to whether IFRS firms effectively generate M&A or procrastinate losses.

The tables of correlation coefficient are as follows:

Table 3: Correlation coefficient of Japanese accounting firms ($N=425$)

	<i>RE</i>		<i>AM</i>		<i>GW_0</i>		<i>GW_1</i>		<i>GW_2</i>		<i>GW_3</i>		<i>GW_4</i>		<i>ROA_0</i>		<i>ROA_1</i>		<i>ROA_2</i>		<i>ROA_3</i>		<i>ROA_4</i>		<i>CF_0</i>		<i>CF_1</i>		<i>CF_2</i>		<i>CF_3</i>		<i>CF_4</i>		<i>IM</i>	
<i>RE</i>	1																																			
<i>AM</i>	0.55	***	1																																	
<i>GW_0</i>	0.45	***	0.88	***	1																															
<i>GW_1</i>	0.50	***	0.86	***	0.94	***	1																													
<i>GW_2</i>	0.56	***	0.86	***	0.91	***	0.94	***	1																											
<i>GW_3</i>	0.57	***	0.70	***	0.73	***	0.74	***	0.78	***	1																									
<i>GW_4</i>	0.61	***	0.61	***	0.62	***	0.62	***	0.66	***	0.84	***	1																							
<i>ROA_0</i>	-0.02		-0.05		-0.02		-0.02		-0.02		-0.02		-0.02		1																					
<i>ROA_1</i>	-0.05		-0.07		-0.04		-0.04		-0.03		-0.03		-0.03		0.87	***	1																			
<i>ROA_2</i>	-0.07		-0.09		-0.07		-0.07		-0.07		-0.06		-0.05		0.75	***	0.88	***	1																	
<i>ROA_3</i>	-0.09	*	-0.10	*	-0.08		-0.08		-0.08		-0.08		-0.07		0.79	***	0.79	***	0.88	***	1															
<i>ROA_4</i>	-0.10	*	-0.11	*	-0.09		-0.10		-0.09		-0.09		-0.09		0.75	***	0.82	***	0.87	***	0.91	***	1													
<i>CF_0</i>	0.76	***	0.58	***	0.55	***	0.59	***	0.62	***	0.56	***	0.53	***	-0.04		-0.05		-0.06		-0.07		-0.09		1											
<i>CF_1</i>	0.76	***	0.58	***	0.57	***	0.60	***	0.63	***	0.55	***	0.53	***	-0.03		-0.04		-0.05		-0.07		-0.08		0.86	***	1									
<i>CF_2</i>	0.76	***	0.54	***	0.53	***	0.56	***	0.61	***	0.53	***	0.51	***	0.01		-0.01		-0.02		-0.03		-0.05		0.69	***	0.79	***	1							
<i>CF_3</i>	0.74	***	0.57	***	0.52	***	0.59	***	0.63	***	0.57	***	0.51	***	0.01	*	0.00		-0.03		-0.03		-0.04		0.82	***	0.72	***	0.75	***	1					
<i>CF_4</i>	0.77	***	0.62	***	0.54	***	0.61	***	0.65	***	0.57	***	0.55	***	0.00	***	0.00		-0.03		-0.04		-0.04		0.88	***	0.84	***	0.68	***	0.78	***	1			
<i>IM</i>	0.49	***	0.44	***	0.46	***	0.48	***	0.50	***	0.41	***	0.38	***	-0.06		-0.05		-0.06		-0.07		-0.07		0.74	***	0.80	***	0.66	***	0.66	***	0.64	***	1	

Note: *, ** and *** denote two-tailed significance at the 0.05, 0.01 and 0.001 levels, respectively.

Table 4: Correlation coefficient of IFRS firms ($N=24$)

	<i>RE</i>		<i>GW_0</i>		<i>GW_1</i>		<i>GW_2</i>		<i>GW_3</i>		<i>GW_4</i>		<i>ROA_0</i>		<i>ROA_1</i>		<i>ROA_2</i>		<i>ROA_3</i>		<i>ROA_4</i>		<i>CF_0</i>		<i>CF_1</i>		<i>CF_2</i>		<i>CF_3</i>		<i>CF_4</i>		<i>IM</i>
<i>RE</i>	1																																
<i>GW_0</i>	0.85	***	1																														
<i>GW_1</i>	0.84	***	0.99	***	1																												
<i>GW_2</i>	0.85	***	0.99	***	0.99	***	1																										
<i>GW_3</i>	0.53	**	0.78	***	0.77	***	0.73	***	1																								
<i>GW_4</i>	0.43	*	0.68	***	0.69	***	0.63	*	0.92	***	1																						
<i>ROA_0</i>	-0.09		-0.02		-0.02		-0.01		-0.07		-0.06	1																					
<i>ROA_1</i>	-0.02		0.05		0.07		0.09		-0.07		-0.10	0.85	****	1																			
<i>ROA_2</i>	0.17		0.10		0.09		0.11		-0.03		-0.08	0.48	*	0.68	***	1																	
<i>ROA_3</i>	-0.09		-0.10		-0.10		-0.11		-0.08		-0.10	0.22		0.35		0.55	*	1															
<i>ROA_4</i>	0.03		-0.05		-0.04		-0.04		-0.11		-0.04	0.30		0.52	**	0.80	***	0.46	*	1													
<i>CF_0</i>	0.77	***	0.86		0.87	***	0.86	***	0.84	***	0.75	***	-0.07	0.05	0.12		-0.08	0.01	1														
<i>CF_1</i>	0.68	***	0.82	***	0.82	***	0.79	***	0.91	***	0.87	***	-0.09	-0.03	0.06		-0.09	-0.01	0.96	***	1												
<i>CF_2</i>	0.68	***	0.79	***	0.80	***	0.78	***	0.82	***	0.80	***	-0.09	0.05	0.14		-0.04	0.06	0.96	***	0.96	***	1										
<i>CF_3</i>	0.49	*	0.65	***	0.66	***	0.61	*	0.94	***	0.91	***	-0.13	-0.10	-0.03		-0.09	-0.05	0.86	***	0.94	***	0.88	***	1								
<i>CF_4</i>	0.50	*	0.58	**	0.59	**	0.53	**	0.85	***	0.92	***	-0.15	-0.18	-0.05		-0.12	-0.02	0.78	***	0.88	***	0.84	***	0.94	***	0.94	***	0.94	***	1		
<i>IM</i>	-0.27		-0.20		-0.20		-0.19		-0.15		-0.13		-0.25	-0.20	-0.23		-0.23	-0.13	-0.19		-0.19		-0.16		-0.16		-0.16		-0.16		-0.13	1	

Note: *, ** and *** denote two-tailed significance at the 0.05, 0.01 and 0.001 levels, respectively.

Table 5: Results of simple regression of Japanese accounting firms (N=425)

Panel A									
Independent Variable	0		1 year later		2 years later		3 years later		4 years later
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)
RE	0.11	***	0.14	***	0.17	***	0.23	***	0.29
	(10.48)		(11.95)		(13.81)		(14.22)		(15.72)
<hr/>									
Adjusted R-square Coefficient	0.20		0.25		0.31		0.32		0.37
F-value	109.74	***	142.70	***	190.77	***	202.15	***	247.17
N	425		425		425		425		425
<hr/>									
Panel B									
Independent Variable	0		1 year later		2 years later		3 years later		4 years later
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)
GW	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
	(-0.49)		(-0.81)		(-1.39)		(-1.71)		(-1.9)
<hr/>									
Adjusted R-square Coefficient	(0.00)		(0.00)		0.00		0.00		0.01
F-value	0.24		0.65		1.94		2.91		3.62
N	425		425		425		425		425
<hr/>									
Panel C									
Independent Variable	0		1 year later		2 years later		3 years later		4 years later
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)
AM	(0.00)		(0.00)		(0.00)		(0.00)	*	(0.00)
	(-1.09)		(-1.45)		(-1.88)		(-2.03)		(-2.37)
<hr/>									
Adjusted R-square Coefficient	0.00		0.00		0.01		0.01		0.01
F-value	1.18		2.12		3.52		4.14	*	5.62
N	425		425		425		425		425
<hr/>									
Panel D									
Independent Variable	0		1 year later		2 years later		3 years later		4 years later

Table 5: Cont'd

	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
GW	0.84	***	0.93	***	0.83	***	0.83	***	1.02	***
	(13.59)		(14.39)		(12.73)		(12.40)		(13.05)	
Adjusted R-square Coefficient	0.30		0.33		0.28		0.27		0.29	
F-value	184.67	***	207.06	***	162.08	***	153.87	***	170.21	***
N	425		425		425		425		425	
Panel E										
Independent Variable	0		1 year later		2 years later		3 years later		4 years later	
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
AM	10.45	***	11.13	***	9.98	***	10.74	***	13.93	***
	(14.80)		(14.72)		(13.15)		(14.10)		(16.36)	
Adjusted R-square Coefficient	0.34		0.34		0.29		0.32		0.39	
F-value	219.12	***	216.79	***	172.96	***	198.78	***	267.50	***
N	425		425		425		425		425	
Panel F										
Independent Variable	0		1 year later		2 years later		3 years later		4 years later	
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
CF	0.36	***	0.45	***	0.51	***	0.62	***	0.69	***
	(13.59)		(14.97)		(16.01)		(13.86)		(12.90)	
Adjusted R-square Coefficient	0.30		0.35		0.38		0.31		0.28	
F-value	184.67	***	224.13	***	256.17	***	192.17	***	166.48	***
N	425		425		425		425		425	

Note: *, ** and *** denote two-tailed significance at the 0.05, 0.01 and 0.001 levels, respectively.

First, Japanese accounting firms are shown in Table 5. The table displays the results of the amortization of goodwill among companies. The *F*-test for Model 2's statistical goodness-of-fit was significant at the 0.001 level in Panels A, D, E, and F, with an adjusted R^2 from 0.20 to 0.39. This result suggests that these models make a strong prediction of the dependent variable in terms of the included independent variable.

Panel A determines that *RE* has a positive impact on *GW* for all years included. For example, *RE* greatly influences *GW* after four years (coefficient: 0.29, *p*-value: 0.000).

Next, Panel B indicates that *GW* does not affect *ROA*. However, it seems that the effect of *GW* is obtained after five years or longer because the *t*-value rises every year.

Panel C displays that the *AM* affects *ROA*. After three or four years, *GW* negatively influences *ROA* (coefficient: -0.000, *p*-value: 0.005; coefficient: -0.000, *p*-value: 0.005). The coefficient is negative. It has been determined that the *AM* corresponds with the revenue generated from M&A. Thus, it turns out that the effect is obtained several years later.

Panels D and E investigate whether *GW* and *AM* affect future *CF*, thus determining that both variables have a positive influence on future *CF* from the current fiscal year up to four years later.

Finally, Panel F has made it clear that future *CF* has a positive influence on *GW* from the current fiscal year up to four years later.

Table 6 displays the results obtained from analysing IFRS firms—that is, firms that do not amortize goodwill.

Table 6: Results of simple regression of IFRS firms (N=24)

Panel A										
Independent Variable	0		1 year later		2 years later		3 years later		4 years later	
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
RE	0.69	***	0.72	***	0.75	***	0.69	**	0.57	*
	(7.58)		(7.26)		(7.46)		(2.90)		(2.23)	
Adjusted R-square Coefficient	0.71		0.69		0.70		0.24		0.15	
F-value	57.45	***	52.77	***	55.58	***	8.40	**	4.97	*
N	24		24		24		24		24	
Panel B										
Independent Variable	0		1 year later		2 years later		3 years later		4 years later	
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
GW	(0.00)		0.00		0.00		(0.00)		(0.00)	
	(-0.09)		(0.25)		(0.46)		(-0.46)		(-0.22)	
Adjusted R-square Coefficient	(0.05)		(0.04)		(0.04)		(0.04)		(0.04)	
F-value	0.01		0.06		0.21		0.21		0.05	
N	24		24		24		24		24	
Panel C										
Independent Variable	0		1 year later		2 years later		3 years later		4 years later	
	Coefficient		Coefficient		Coefficient		Coefficient		Coefficient	
	(t-value)		(t-value)		(t-value)		(t-value)		(t-value)	
GW	0.32	***	0.35	***	0.30	***	0.34	***	0.23	**
	(7.96)		(6.60)		(5.96)		(4.01)		(3.30)	
Adjusted R-square Coefficient	0.73		0.65		0.60		0.40		0.30	
F-value	63.42	***	43.61	***	35.49	***	16.09	***	10.89	**
N	24		24		24		24		24	
Panel D										
Independent Variable	0		1 year alter		2 years later		3 years later		4 years later	

Table 6: Cont'd

	Coefficient (<i>t</i> -value)		Coefficient (<i>t</i> -value)		Coefficient (<i>t</i> -value)		Coefficient (<i>t</i> -value)		Coefficient (<i>t</i> -value)	
CF	2.303	***	2.441	***	2.496	***	3.618	***	2.496	***
	(7.96)		(8.18)		(7.76)		(7.18)		(7.76)	
Adjusted R-square Coefficient	0.731		0.741		0.72		0.687		0.72	
F-value	63.42	***	66.85	***	60.2	***	51.52	***	60.2	***
N	24		24		24		24		24	

Note: *, ** and *** denote two-tailed significance at the 0.05, 0.01 and 0.001 levels, respectively.

The *F*-test for statistical goodness-of-fit was significant at the 0.001 level in Panels A, C, and D. In Table 5, it was found that the fitness of the model is good, with the exception of the model measuring whether *GW* influences *ROA*.

First, Panel A analyses whether *RE* has an impact on future *GW*. However, although *RE* has a very strong influence from the current year to two years later, it turned out that the influence weakens at both three and four years later.

Panel B displays that *GW* affects neither *ROA* nor Japanese accounting firms. Furthermore, *GW* affects the future operating *CF* in Panels C and D. These results are consistent with Japanese accounting firms. However, the results indicate that operating *CF* has a strong, positive impact on future *GW*. These results are nearly the same as those of firms conforming to Japanese accounting standards. However, it becomes clear that those who amortize expenses of *GW* have little influence on *ROA*.

Conclusions

This research examined whether the amortization and/or non-amortization of goodwill affect future profits and cash flows. First, it has become clear that legal RE accelerate M&A because they affect the future goodwill along both accounting standards.

Next, the results revealed that the amortization of goodwill corresponds with the future *ROA* in conformity with Japanese accounting standards. However, this research was unable to claim that goodwill affects *ROA*, as this result was different from that obtained by Okuhara (2017).

On the other hand, this study did not determine that goodwill affects *ROA* in IFRS companies. Particularly, IFRS firms invested greater amounts of money than did Japanese accounting firms. Therefore, IFRS firms' goodwill might not be effectively applied to M&A within four years.

Finally, it can be observed that both goodwill and the amortization of goodwill affect operating cash flow. Furthermore, operating cash flow has an impact on future goodwill according to the results of both criteria. It can also be observed that M&A increases operating cash flow and the operating cash flow subsequently increase, thus leading to further M&A. However, it is necessary to reanalyse and verify whether or not operating cash flow is related to profit, as goodwill is not associated with future *ROA*.

Furthermore, the limits of the research are explained in the following paragraphs. First, the number of IFRS samples included in the study is rather small. There are still fewer than 200 companies that conform to IFRS in Japan. Due to the small number included in the sample, it is undeniable that generalizing the research results may be difficult. In addition, many companies recognize neither goodwill nor the amortization of goodwill among Japanese accounting firms' financial statements because these firms include goodwill amortization expenses in their general administrative expenses.

Next, I should further investigate the quality of earnings among IFRS firms. It is necessary that extraordinary items be added into the model concerning earnings manipulation. However, IFRS is required to reveal neither the individual extraordinary income nor the extraordinary loss in its income statement. These elements are included in the operating income or as losses on the income statement. Therefore, I was unable to conduct such an analysis in this paper.

As a future research direction, I should more carefully examine the contents of goodwill paid by companies. This future research will demonstrate that goodwill will create cash flow in the future, although it shall not imply that cash flow is created from synergy or any other M&A effects. Moreover, this research used a simple regression analysis. The next study will add the control variables to these models such that a multiple regression analysis may be conducted.

Additionally, I must analyse the changing accounting standards from those of the Japanese to those of IFRS because the latter does not require the amortization of goodwill. Therefore, companies that experience changing IFRS might have intentions associated with earnings management. The research of earnings management is a task that compares and analyses years before and after IFRS compliance is implemented.

Furthermore, it is necessary that Taiwanese, Chinese, and US companies be analysed such that the relationship between goodwill and future cash flows may be confirmed. Therefore, I will conduct research involving the above mentioned items in my next study.

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