

Do Investors React to Purchase Price Allocation?



Miss Nonthawan U-thisanonh

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

An Independent Study Submitted in Partial Fulfillment of the
Requirements
for the Degree of Master of Science in Finance
Department of Banking and Finance
FACULTY OF COMMERCE AND ACCOUNTANCY
Chulalongkorn University
Academic Year 2019
Copyright of Chulalongkorn University

Do Investors React to Purchase Price Allocation?



สารนิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาการเงิน ภาควิชาการธนาคารและการเงิน

คณะพาณิชยศาสตร์และการบัญชี จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2562

ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Independent Study Title	Do Investors React to Purchase Price Allocation?
By	Miss Nonthawan U-thisanonth
Field of Study	Finance
Thesis Advisor	Associate Professor KANIS SAENGCHOTE, Ph.D.

Accepted by the FACULTY OF COMMERCE AND ACCOUNTANCY, Chulalongkorn University in Partial Fulfillment of the Requirement for the Master of Science

INDEPENDENT STUDY COMMITTEE

..... Chairman
()

..... Advisor
(Associate Professor KANIS SAENGCHOTE, Ph.D.)

..... Examiner
(JANANYA STHIENCHOAK, Ph.D.)

..... Examiner
(Associate Professor SIRA SUCHINTABANDID, Ph.D.)

CHULALONGKORN UNIVERSITY

นันทวรรณ อุตีสานนท์ : Do Investors React to Purchase Price Allocation?. (Do Investors React to Purchase Price Allocation?) อ.ที่ปรึกษาหลัก : รศ. ดร.คณิศร์ แสงโชติ

This study examines the influence of Purchase Price Allocation (PPA) on investors' decision making in Thailand by utilising the completed M&A deals which the acquirers listed on the Stock Exchange of Thailand and are over 50% owned after transactions during 2010 – 2019. I investigate how purchase price allocation to goodwill impacts on stock return reaction surrounding the announcement of final PPA information and inspect an association between percentage of goodwill allocated to the identifiable intangible assets and potential earnings per share (EPS) dilution. However, I do not find the supporting evidence to indicate that the investors react to the final disclosure of PPA information and the percentage of goodwill allocated to the identifiable intangible assets. Moreover, my findings do not show that the PPA information may be influenced by management preferences since there is no evidence that the percentage of goodwill allocated to the identifiable intangible assets and potential EPS dilution are correlated.

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

สาขาวิชา การเงิน

ลายมือชื่อนิติกร

ปีการศึกษา 2562

.....
ลายมือชื่อ อ.ที่ปรึกษาหลัก

.....

6181966326 : MAJOR FINANCE

KEYWO Do Investors React to Purchase Price Allocation?,

RD: Purchase Price Allocation, PPA

Nonthawan U-thisanonth : Do Investors React to Purchase Price Allocation?. Advisor: Assoc. Prof. KANIS SAENGCHOTE, Ph.D.

This study examines the influence of Purchase Price Allocation (PPA) on investors' decision making in Thailand by utilising the completed M&A deals which the acquirers listed on the Stock Exchange of Thailand and are over 50% owned after transactions during 2010 – 2019. I investigate how purchase price allocation to goodwill impacts on stock return reaction surrounding the announcement of final PPA information and inspect an association between percentage of goodwill allocated to the identifiable intangible assets and potential earnings per share (EPS) dilution. However, I do not find the supporting evidence to indicate that the investors react to the final disclosure of PPA information and the percentage of goodwill allocated to the identifiable intangible assets. Moreover, my findings do not show that the PPA information may be influenced by management preferences since there is no evidence that the percentage of goodwill allocated to the identifiable intangible assets and potential EPS dilution are correlated.

Field of Study:
Academic Year:
Finance
2019

Student's Signature
.....
Advisor's Signature
.....

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my advisor, Assoc. Prof. Kanis Saengchote, Ph.D. for his continuous support, patience and immense knowledge. He always spends a lot of his valuable time to provide useful suggestions whenever I had a question about my research. In order to complete this research, I have learned a lot and get valuable experience with many challenging. I would also like to thank Assoc. Prof. Sira Suchintabandid, Ph.D. and Jananya Sthienchoak, Ph.D. for their valuable time and insightful comments on this research.

Moreover, I have to express my deepest gratitude to my parents and my dear friends for their continuous support and encouragement throughout my years of study. This accomplishment would not have been possible without them.

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

Nonthawan U-thisanonth

TABLE OF CONTENTS

	Page
.....	iii
ABSTRACT (THAI)	iii
.....	iv
ABSTRACT (ENGLISH)	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
INTRODUCTION	1
Background and Significance of the problem	1
Objectives	3
Research Hypothesis	4
LITERATURE REVIEW	6
DATA	11
METHODOLOGY	16
EMPIRICAL RESULTS	20
CONCLUSION	25
REFERENCES	28
VITA	30

INTRODUCTION

Purchase Price Allocation (PPA) is the process following a merger or acquisition for identifying and measuring the fair values of identifiable assets acquired and liabilities assumed including requires goodwill to be considered as the residual of the consideration paid. Thai Financial Reporting Standard (TFRS) no. 3 (Thailand Federation of Accounting Professions, 2019) allows the measurement period shall not exceed one year from the acquisition date. Since the completion of PPA can be disclosed around one year after the acquisition date, there is a concern whether this information will be taken into consideration for investment. As the fair value estimates in PPA are subjective, there is a potential risk of manipulation which reduces its informativeness for investors.

Background and Significance of the problem

Financial reporting provides financial information over a specific period of time, including revenues, expenses, profits, capital and cashflow, that is useful to existing and potential investors, customers, regulators, lenders and other creditors in making decisions relating to funding resources to the company. Each of these financial indicators is very significant and demonstrates the overall health of a company including the consequences of managers' important decisions i.e. business strategies, budgeting, mergers and acquisitions. To facilitate cross-border M&A, the U.S. (FASB) and international (IASB) standard-setters developed a common and comprehensive standard for the accounting for business combinations that could be jointly used for both domestic and international financial reporting, called the acquisition method. At the acquisition date, the purchase price must be allocated to the fair values of identifiable assets acquired and liabilities assumed, i.e. brand name,

order backlogs, patents, and customer relationships, in order to provide relevant information about acquisition¹. The purchase price allocation (PPA), that is a process for identifying and measuring the fair values of identifiable assets acquired and liabilities assumed, requires goodwill to be considered as the residual of the consideration paid. Goodwill is not allowed to amortize systematically due to an indefinite useful life but required to be tested annually for impairment. On the other hand, fair value uplifts on the existing assets and identifiable intangible assets with limited life are subsequently carried at cost less accumulated amortization. The amortization is calculated using the systematic method over their estimated useful lives. According to the FASB, PPA should “provide users with a better understanding of the resources acquired and improve their ability to assess future profitability and cash flows”². Since the completion of PPA requires detailed knowledge of the complex valuation models including relevant analysis and is therefore reviewed by experts at auditing firms, International Financial Reporting Standard (IFRS) no.3, *Business Combinations* allows the measurement period shall not exceed one year from the acquisition date³. In Thailand, the public companies adopt Thai Financial Reporting Standards (TFRSs) which substantially converged with International Financial Reporting Standards (IFRSs).

However, the questions are raised about the PPA information relevant to the investment decision-making. Since the completion of PPA can be disclosed around one year after the acquisition date, there is a concern whether this information will be

¹ International Financial Reporting Standard (IFRS) no. 3, *Business Combinations* paragraphs 10 – 33 ((IASB), 2018)

² <https://www.fasb.org/summary/stsum141.shtml>

³ International Financial Reporting Standard (IFRS) no. 3, *Business Combinations* paragraphs 45 ((IASB), 2018)

taken into consideration for investment. Moreover, other researches concerned about the usefulness for investors regarding intangible asset recognition separately from goodwill⁴ and the credibility of fair value measurement of intangible assets⁵. Since the PPA methodology involves several judgments to estimate the fair value, there is a potential risk of manipulation which misleads and decreases its informativeness to investors.

Objectives

In this study, the research question is “Do Investors React to Purchase Price Allocation?”. To deal with this question, we examine:

- 1) whether investors react to the PPA information disclosed by acquirers, to revise their expectation about future profitability and cash flows. I analyze whether and how investors react to a purchase price allocated to goodwill at the PPA completion date. A reaction to changed goodwill would point out that the PPA information is relevant to investors, as intended by the standard-setters.

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

⁴ See (Kanodia, Sapra, & Venugopalan, 2004), (Skinner & research, 2008) and (Penman, 2009) regarding the investors’ benefit in connection with the valuation of intangible assets. Please see more details of their arguments in the literature review section.

⁵ See (Ball & research, 2006), (Beatty & Weber, 2006), (Zhang & Zhang, 2007), (R. J. T. A. R. Shalev, 2009) and (R. Shalev, Zhang, & Zhang, 2013), who argue that purchase price allocations are subject to possible manipulation. Please see more details of their arguments in the literature review section.

- 2) whether the identifiable intangible assets allocated from goodwill is associated with potential EPS dilution. The accounting treatment between goodwill and the identifiable intangible assets are different. The allocation to identifiable intangible assets results in charges to earnings per share (EPS), whereas goodwill does not. The allocation scheme must be approved by the audit committee of the acquirer and an auditing firm. To be a fair presentation of financial statements, the EPS dilution has no relationship with goodwill allocation to identifiable intangible assets.

Research Hypothesis

The accounting standard-setters mention that the allocation of purchase price to assets acquired and liabilities assumed is beneficial to investors and uncomplicated to compare the financial results of companies due to the same methods of accounting for business combinations. The capital allocation decision of investors can be influenced by the PPA information. Referred to the PPA information, the residual goodwill has implications on the timing, amount and uncertainty of expected future cash flows. Nevertheless, the investors may overlook the PPA information i.e. PPA information comes too late, being completed around one year after the acquisition. The PPA content is not a new information but is just accounting presentation to allocate purchase price. Moreover, the valuation methods may be unreliable and biased due to many assumptions and estimates.

To prove the relevance of PPA information, the change in expectations of investors is captured by stock price reaction following the initial disclosure of new information such as announcement date of M&A deals and PPA completion.

H1: There is no stock return reaction surrounding the final release of PPA information.

According to Efficient Market Theory, stock prices reflect all available information fully and instantaneously. However, I consider that the completion of PPA is not provided new information to the investors. The PPA is just the process following a merger or acquisition to reallocate goodwill to other identifiable assets. Thus, I do not expect to find the investors' reaction at the announcement date of PPA completion.

H2: There is no stock return reaction to the percentage of goodwill allocated to the identifiable intangible assets.

Goodwill is an expectation about future profitability and cash flows. If the final goodwill decreases resulting from goodwill allocation to the identifiable intangible assets, I do not expect to see the reaction which probably reflects the lower future profitability and cash flows.

H3: There is no relationship between the percentage of goodwill allocated to the identifiable intangible assets and potential EPS dilution.

Since goodwill and the identifiable intangible assets have the different account treatments, the amortization of the identifiable intangible assets results in a decline of EPS while goodwill does not. I do not expect to find the relationship between EPS dilution and goodwill allocation to identifiable intangible assets due to management preferences or a signal manipulation of financial reporting.

LITERATURE REVIEW

According to the accounting standards related to business combinations, the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) reconsidered jointly their guidance for applying the acquisition method to develop a common and comprehensive standard for both domestic and international financial reporting. IASB stated that “One reason for providing such criteria was the boards' conclusion that the decision-usefulness of financial statements would be enhanced if intangible assets acquired in a business combination were distinguished from goodwill.”⁶ Some academic researches support the benefit of fair value measurement and recognition of goodwill separately from intangible assets. Kimbrough (2007) examines the impact of SFAS 141 adoption on the informativeness of PPAs and supports positive relationship between the consideration paid and the cumulative abnormal returns increased after the adoption of SFAS 141 (Healy, Kutcher, Martinez-Jerez, & Ramana, 2007). Moreover, he found that recognition of intangible assets apart from goodwill is resulting in the decision usefulness and the evidence shown that the investors react positively to PPA due to asset allocation into each identified intangible asset. On the other hand, he argues that goodwill is a compound asset that consists of several elements i.e. unrecognized intangible assets, external synergies and the target's going concern goodwill. Since these elements are hard to distinguish, the identified intangible assets is relatively more informative to investors than goodwill. Furthermore, Paugam, L, Astolfi, P, Ramond, O (2015) support that the investors negatively react to abnormal goodwill resulting from the release of PPA (Paugam, Astolfi, Ramond, & Policy, 2015). The

⁶ Basis for Conclusions on IFRS 3 Business Combinations, paragraph BC158

abnormal goodwill determines the difference between actual goodwill and expected goodwill as the market participants' expectation upon the first release of the acquisition. They demonstrate that PPA is useful information for valuation of stock price. Moreover, the increase in abnormal goodwill resulting from PPA can lead to the increase in likelihood, magnitude and frequency of future goodwill impairment following acquisition completion and the decrease in performance of acquired company following the acquisition completion. They also conclude that the abnormal goodwill is incurred from overpayment rather than overallocation of purchase price to goodwill.

In terms of usefulness of PPAs, Kanodia (2004) and Skinner (2008) argues that the estimation of intangible assets is not useful in some circumstances since it is likely to be very difficult to ensure that the measure of intangible assets could be standardized across different companies, industries, and economies. Therefore, no measurement of intangible assets could also prevent the correct valuation by the investors. However, the argument of Skinner (2008) contradicts with the opinion that even intangible assets are roughly estimated, they are better than nothing. From a valuation perspective, Penman (2009) indicated that the intangible assets generated the value in the statement of income even though they were missing from the statement of financial position. It means that earnings from intangible assets can be flow through to the statement of income. For example, the value of brand, distribution and supply chains, knowledge, and human capital is not recorded in the statement of financial position, but earnings from such above items are reflected in the statement of income. It is also demonstrated that the intangible assets information can be used to evaluate the enterprise value of the company.

With regard to the relevance of PPA information, Shalev (2009) proves that the quality of information disclosed on PPA actually varies widely. He also presents that disclosure is associated with the proportion of Abnormal Goodwill resulting from the PPA. Beatty & Weber (2006) and Zhang & Zhang (2007) advocates that the new accounting standard, called the acquisition method, leads to earnings managements by minimizing the impact of depreciation and amortization expenses on future net income due to the end of goodwill amortization. To reduce the systematic impact on future earnings, this results in recognizing more goodwill than other intangible assets. Shalev et al. (2013) shows that CEOs whose compensation is relative to earnings tend to recognize more goodwill given by the level of purchase price allocated to goodwill. Ball (2006) also argues that the management's financial statements manipulation impacts on quality of financial statements. Some accounting standards such as IFRS 3 and SFAS 141R require fair value measurement by applying a valuation technique when there is no liquid reference market. Accordingly, they are likely to provide greater opportunities for firms to manage earnings and increase earnings management magnitude.

According to TFRS 3, if the measurement related to the accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the acquirer shall report provisional amounts for the items for which the accounting is incomplete in its financial statements. Actually, some acquirers in Thailand recognise the book value of target's net assets at the acquisition date and then reallocate the purchase price to the identifiable assets and goodwill at the PPA completion date. There are different practical ways in other countries i.e. US that expected goodwill represents the economic foundations of the Merger &

Acquisition deals and investors' expectations of overpayment and synergies at the announcement date of acquisition. Therefore, I consider that the PPA content at the completion date is not provided new information to the investors. The goodwill allocation to the identifiable assets is the change in the formats of financial statements. Maines & McDaniel (2000) state that the formats of financial statements for presenting comprehensive income do not significantly affect nonprofessional investors' acquisition and evaluation of that information related to core and non-core activities (Maines & McDaniel, 2000). For professional investors such as analysts, the formats have no or little effect on analysts' acquisition of information related to core activities because this information is significant to the accuracy of their forecasts and stock recommendations. In contrast, the formats can affect professional investors' acquisition of information related to non-core activities. Since non-core activities are less important to a company's valuation, they may not be included in analysts' valuation models and thus would be acquired only through accidental search for more relevant information. Since the information related to business combinations is critical to the company's valuation, I consider that the reallocation from PPA information does not affect on investors' acquisition of information.

My study contributes to the relevant of PPA information in Thailand. Since the completion of PPA can be released around one year after the acquisition date, there is a concern whether this information will be taken into consideration for investment. Paugam, L, Astolfi, P, Ramond, O (2015) exhibit that PPA information including abnormal goodwill are informative for investors and support the accounting standard-setters' objective. They present evidence that the investors react negatively to abnormal goodwill from PPA following the disclosure in the

U.S. SEC filings (Paugam et al., 2015). In addition, the change in goodwill resulting from PPA is an indicator of acquisition quality and is an early signal of future goodwill impairment and expected performance. On the contrary, I consider that Thailand stock prices fully reflect the initial PPA information at the announcement date. There is no reaction to revise their expectation about future profitability and cash flows surrounding the final disclosure of PPA information. This paper will further investigate market participant reaction in Thailand surrounding the release of final PPA and then analyze the implication of investors' reaction.

Prior studies focus on the valuation of intangible assets (e.g. Kanodia (2004), Skinner (2008) and Penman (2009)) and motivations for earnings management behaviours related to separately recognize intangible assets which fair value estimates are subjective (e.g. Ball (2006), Zhang and Zhang (2007), Shalev (2009) and Shalev et al. (2013)). Since the goodwill allocation recognised in the financial statements must be approved by the audit committee and audit firm, the earning management and manipulation should not occur. However, I add another point of view to capture the management preferences by using EPS because EPS is affected by the different accounting methods and one of important financial measure which indicates the profitability and value of a company. This paper will examine the association between goodwill allocated to the identifiable intangible assets and potential EPS dilution to find management preferences or insight of interests regarding allocation of purchase price to goodwill.

DATA

Dataset consists of completed Mergers and Acquisitions (M&A) deals which acquirers listed on the Stock Exchange in Thailand during 2010 – 2019 (10 years) from Securities Data Corporation (SDC) Platinum database. Since the preliminary and completion of PPAs are disclosed in the financial statements, I hand-collect PPA data from the financial statements available on Thailand Securities and Exchange Commission (SEC) website, particularly the acquisition date, the PPA completion date, the amount of goodwill and identifiable intangible assets resulting from the business combination. I obtain stock price and the number of outstanding shares from Thomson Financials Datastream.

The initial list of samples contains 302 completed M&A deals. We exclude the deals which do not perform PPA process and disclose the final PPA completion in the financial statements as Panel A which summarises descriptive statistics for the sample information. As a result, the final sample is 142 completed M&A deals.

Table 1: Descriptive statistics*Panel A: Sample selection*

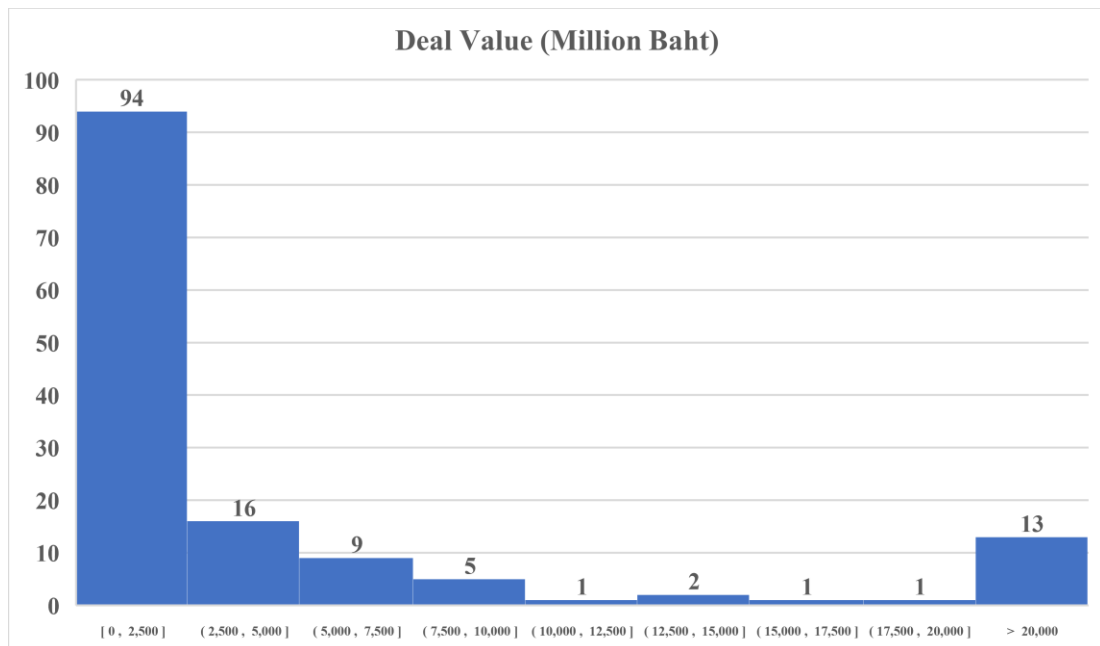
Sample selection	# deals
Completed M&A deals which acquirers listed on the Stock Exchange in Thailand and owned over 50% after transactions during 2010 – 2019	302
Excluding acquisition of assets	(28)
Excluding acquisition of business as investment in joint ventures	(12)
Excluding acquisition of business as investment in associates	(2)
Excluding business combinations under common control	(20)
Excluding business combinations under reverse acquisition	(4)
Excluding additional ownership interests without change in control	(38)
Excluding newly established acquirees	(5)
Excluding missing deals in the financial statements	(14)
Excluding missing financial statements due to delisted companies	(2)
Excluding missing PPA disclosure in the financial statements	(34)
Excluding acquisition date which is out of scope	(1)
Final sample	142

Panel B: Number of deals and deal value across industries

Industry	# deals	%	Deal value (Baht)	%
Agro & Food Industry	14	10%	167,010,585,732	15%
Consumer Products	2	1%	3,225,236,795	0%
Financials	8	6%	38,200,943,062	3%
Industrials	33	23%	211,750,368,839	19%
Property & Construction	26	18%	87,491,168,656	8%
Resources	25	18%	329,841,594,135	30%
Services	23	16%	263,749,088,520	24%
Technology	11	8%	6,980,544,060	1%
Totals	142	100%	1,108,249,529,799	100%

Panel B provides a description of the deals per industry. About 23% of all transactions is clustered in the Industrials industry, while the Consumer Products industry has the lowest level of representation in terms of quantity and amount.

Panel C: Histogram of the deal values



Panel D: Deal Characteristics

Description	N	Mean	SD	Min	Max
Deal	142	7,804,574,154	22,588,632,640	200,000	192,420,000,000

Panel C and Panel D provide descriptive statistics for the deals and a histogram of the transaction values to represent the distribution of sample deals. The sample deals are clustered in below 2,500 million baht. The mean and standard deviation of deals are 7,805 million baht and 22,589 million baht, respectively.

Panel E: Number of deals for each year

Year	# deals	%
2010	15	11%
2011	20	14%
2012	22	15%
2013	15	11%
2014	14	10%
2015	12	8%
2016	10	7%
2017	12	8%
2018	17	12%
2019	5	4%
Totals	142	100%

Panel E reports the distribution of the sample over the 2010 – 2019 period. The sample is relatively uniformly distributed. Year 2012 has the highest number of M&A effective deals, whereas year 2019 has the lowest number.

Panel F: Duration of M&A transactions

Industry	Avg day between PPA announcement date and Acquisition date	Avg day between PPA announcement date and 1st FS announcement date	Avg day between PPA announcement date and M&A announcement date
Agro & Food Industry	376	273	419
Consumer Products	216	99	216
Financials	149	71	246
Industrials	315	222	432
Property & Construction	260	172	356
Resources	187	109	328
Services	204	104	250
Technology	205	104	276
Average day	251	159	343

Panel F exhibits the duration of M&A transactions before PPA announcement date per industry. Acquisition date is the date that an acquirer has a control over an acquiree. The 1st FS announcement date is the first date that publishes the deals in the financial statements. The M&A announcement date is the date that announces the deals in the market (from Securities Data Corporation Platinum database). The industries that spend more time than average to close the deals, are Agro & Food, Industrials and Property & Construction industries. Since some deals spend over 1 year to complete PPA after the M&A announcement date, the investors may not wait for a long time to take the PPA information into consideration. The investors will analyze the deals whether they are good deals or bad deals and then react immediately.

Panel G: Variable Characteristics

Variables	N	Mean	SD	Min	P5	Median	P95	Max
CAR	142	-0.0027	0.0463	-0.2452	-0.1365	0.0003	0.1115	0.1485
ChangeGW	142	0.1085	0.7109	-0.0974	-0.0161	0.0000	1.1517	8.2941
EPSDilution	142	-0.0066	0.0794	-0.3662	-0.3662	0.0000	0.2952	0.2952

Panel G shows descriptive statistics for the variables used in the model. The cumulative abnormal return (CAR) over event window has a mean value of -0.27% and standard deviation of 4.63%. ChangeGW represents the change of goodwill allocation to the identifiable intangible assets after the PPA completion divided by deal value. The mean and standard deviation of ChangeGW are 10.85% and 71.09%, respectively. On average, the PPA results in the change of goodwill around 10.85% based on the deal value. The change of goodwill is quite volatile as the value deviates from its average around 71.09%. Referred to the sample data of previous research⁷ in the U.S., they

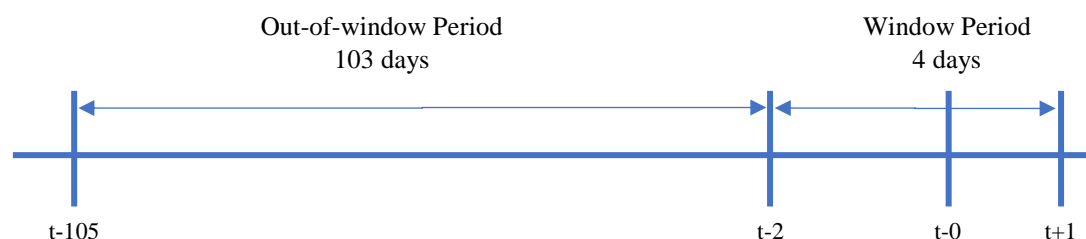
⁷ See Paugam, L., Astolfi, P., & Ramond, O. (2015). Accounting for business combinations: Do purchase price allocations matter?. *Journal of Accounting and Public Policy*, 34(4), 362-391.

collect the data of M&A deals which complete during 2002 – 2011 and is over \$100 million of deal value. The characteristics of abnormal goodwill or change in goodwill variable has 302 sample data with a mean value of 0.00% and standard deviation of 21.50%. To reduce the effect of possibly spurious outliers, I limit the extreme values in the statistical data by 95% winsorization. I replace all data below the 5th percentile with the 5th percentile value and replace all data above the 95th percentile with the 95th percentile value. After the winsorization process, the mean and standard deviation of ChangeGW are 5.88% and 18.77%, respectively. Moreover, EPSDilution is the potential EPS dilution which is caused by the amortization of identifiable intangible assets. Moreover, the EPSDilution has a mean value of -0.66% and standard deviation of 7.94%.

METHODOLOGY

Our main interest is the reaction of investors to the completion of PPA information. H1 mentions that investors have no reaction to the final disclosure of PPA information. I study the stock price reaction surrounding the disclosure of new information i.e. event study analysis, in order to evaluate the impact of information on the changes in expectations of investors about the timing and expected future cash flows.

Figure 1: Window Period for PPA Completion Announcement



This paper uses period of 4-trading-day period surrounding the announcement date of PPA completion (t-2 to t+1, where day 0 is the announcement date of PPA completion) to construct an event window to capture the reaction of stock price responses to new information as abnormal return. The estimation period is 103 trading days (t-105 to t-3). Under the research hypothesis of semi-strong form of market efficiency, abnormal returns are expected to occur only on announcement date (t-0). Daily return is calculated as follows.

$$\text{Stock Return : } r_{i,t} = \frac{PI_{i,t} - PI_{i,t-1}}{PI_{i,t-1}}$$

where $r_{i,t}$ is the daily return of stock i on day t.

$PI_{i,t}$ is the close price of stock i at the end of day t.

$PI_{i,t-1}$ is the close price of stock i at the end of day t-1.

To calculate daily abnormal return, I use the difference between daily return and market return that derived from Capital Asset Pricing Model (CAPM) Formula as follows:

$$AR_{i,t} = r_{i,t} - E[r_{i,t}]$$

where $AR_{i,t}$ is the abnormal return of stock i on day t.

$r_{i,t}$ is the daily return of stock i on day t.

$E[r_{i,t}]$ is the expected return of stock i at the end of day t which derived from CAPM.

To calculate cumulative abnormal return (CAR) and cumulative average abnormal return (\overline{CAR}), I sum up the current AR at current period (t) with CAR at previous period (t-1), starting from beginning until ending of each 4-day interval as follows.

$$CAR_{i,t} = \sum_{t=-2}^T AR_{i,t}$$

$$\overline{CAR}_{i,t} = \frac{1}{n} \sum_{i=1}^n CAR_{i,t}$$

where $CAR_{i,t}$ is the cumulative abnormal return of stock i on day t .

$AR_{i,t}$ is the abnormal return of stock i on day t .

According to H2, I analyze the association between goodwill allocation to the identifiable intangible assets and CAR surrounding the final release of PPA information.

I estimate the following model by Cross-Sectional Regression Analysis.

$$CAR_i = \alpha_0 + \alpha_1 \text{ChangeGW}_i + \varepsilon_i \quad (1)$$

where CAR_i is the cumulative average abnormal return of stock i for the event window.

ChangeGW_i is the goodwill allocation to the identifiable intangible assets divided by deal value.

Coefficient α_1 captures the association between goodwill allocation to the identifiable intangible assets and cumulative abnormal returns.

To examine management preferences or a signal manipulation of financial reporting, we test its relationship between goodwill allocation to the identifiable intangible assets and EPS dilution. To test H3, we estimate the following model by Cross-Sectional Regression Analysis.

$$\text{ChangeGW}_i = \beta_0 + \beta_1 \text{EPSDilution}_i + \varepsilon_i \quad (2)$$

where ChangeGW_i is the goodwill allocation to the identifiable intangible assets divided by deal value.

EPSDilution_i is the potential EPS dilution calculated by the variance between existing earnings minus potential amortization divided by the number of outstanding shares and the current EPS.

$$\text{EPSDilution} = \frac{\frac{(\text{Net income} - \text{Potential amortization})}{\text{Outstanding shares}} - \text{EPS}}{\text{EPS}}$$

$$\text{Potential amortization} = \frac{\text{Identifiable intangible assets}}{\text{Useful lives in the financial statements}}$$

Coefficient β_1 captures the association between goodwill allocation to the identifiable intangible assets and potential EPS dilution.

EMPIRICAL RESULTS

1. Investors' reaction to PPA announcement

I capture the investor's reaction to the PPA completion by event study analysis. After examining the abnormal return (AR) and cumulative abnormal return (CAR) over the event period, the result is not statistically significant at the 10%, 5% and 1% significance levels (two-tailed test). There is no supporting evidence that the investors react to the final disclosure of PPA information at 10%, 5% and 1% significance level. Table 2 reports the cumulative average abnormal return results for the 4-day event window. Day t-0 is the announcement date of PPA completion. Standard errors are reported in parentheses below the average AR and cumulative average AR.

Table 2: The 4-day event period results and statistical analysis

Day	Average AR	P-value	Cumulative Average AR	P-value
t-2	0.2340% (0.0016)	0.1563	0.2340% (0.0016)	0.1563
t-1	-0.0772% (0.0020)	0.7046	0.1568% (0.0024)	0.5071
t-0	-0.1587% (0.0018)	0.3764	-0.0019% (0.0030)	0.9949
t+1	-0.2648% (0.0026)	0.3091	-0.2667% (0.0039)	0.4935

To analyze the investor's response for a given direction of changed goodwill, I examine the relationship between cumulative abnormal return and the percentage of goodwill allocated to the identifiable intangible assets after the PPA completion.

Table 3: Cross-sectional regression test of the relation between CAR and the percentage of goodwill allocated to the identifiable intangible assets after the PPA completion

Variables	Coeff.	P-value
ChangeGW	0.0233 (0.0207)	0.263
Constant	-0.0040 (0.0041)	0.323
<i>Observations</i>	<i>142</i>	
<i>R-squared</i>	<i>0.89%</i>	

Table 3 presents the estimation result of model (1) to find the association between Investors' reaction to the percentage of goodwill allocated to the identifiable intangible assets after the PPA completion. Standard errors are reported in parentheses below the coefficient. Coefficient α_1 captures the impact of changed goodwill on change in expectations of investors. Since there is no statistically significant coefficient at the 10%, 5% and 1% significance levels (two-tailed test), this result indicate that the investors do not revise their expectations about future profitability and cash flows from the completed PPA information.

Overall, the results signify that the information content of completed PPA does not influence the investors for decision-making in Thailand. This is not consistent with other researches to present the evidences that the investors react to the content of PPA information in the U.S., particularly negatively react to unexpectedly large amount of changed goodwill allocated from purchase price (Kimbrough, 2007 and Paugam, L, Astolfi, P, Ramond, O, 2015). Since the U.S. Securities and Exchange Commission requires the U.S. public companies to submit

acquirers' SEC filings after the completion of the acquisition (Negotiations and Due Diligence process), the acquirers need to make significant estimates and assumptions for their expectations about the timing, magnitude and likelihood of expected future cash flows to allocate the purchase price including the status of allocation i.e. preliminary or completion. After the announcement of PPA, the investors revise their expectation and negatively react to unexpected goodwill. As goodwill is the residual of consideration paid that compounds several elements (i.e. unrecognized identifiable intangible assets, overpayment and external synergies) and is hard to distinguish, the goodwill does not provide a full understanding of the deal dynamics and is conveyed less informative to the investors than separately identifiable intangible assets. In addition, their researches support that the possible factors of the changed goodwill derive from unexpected overpayment (Paugam et al., 2015) and overallocation to goodwill (R. Shalev et al., 2013). On the other hand, the acquirers in Thailand have no disclosure requirement about the estimation of purchase price allocation after the completion of acquisition but are required to disclose the information of nature and financial effect for each business combination i.e. the fair value of total consideration transferred, identifiable asset acquired and liabilities assumed in the financial statement period that the acquirer obtains control of the target (Effective date or Acquisition date). Unfortunately, some acquirers do not obviously report the status of PPA in the quarterly financial statements. It decreases the investors' awareness of the completed PPA information. Consequently, the PPA information is not relevant to the investors that does not meet the objective of the standard-setters.

2. Management preferences with potential EPS dilution

Apart from marketable securities, other identifiable assets acquired and liabilities assumed are unlikely to have quoted prices and their fair value involves numerous judgments. About accounting practice for goodwill and intangible assets, the amortization of identifiable intangible assets decreases EPS while goodwill does not. To look for management preferences or a signal manipulation of financial reporting about goodwill and intangible assets, I examine the association between the percentage of goodwill allocation to the identifiable intangible assets and potential EPS dilution.

Table 4: Cross-sectional regression test of the relation between the percentage of goodwill allocated to the identifiable intangible assets after the PPA completion and potential EPS dilution

Variables	Coeff.	P-value
EPSDilution	-0.1371 (0.1996)	0.493
Constant	0.0579 (0.0158)	0.000***
<i>Observations</i>	142	
<i>R-squared</i>	0.34%	

Table 4 exhibits the estimation result of model (2) to find the relation between the percentage of goodwill allocated to the identifiable intangible assets after the PPA completion and potential EPS dilution. Standard errors are reported in parentheses below the coefficient. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively, in two-tailed tests. Coefficient β_1 captures the impact of potential EPS dilution on changed goodwill. The coefficient of potential EPS dilution is not statistically significant

at the 10%, 5% and 1% levels (two-tailed test). This result shows that the potential EPS dilution is not correlated with goodwill allocation to the identifiable intangible assets.

Overall, this result has no signal manipulation or management preferences regarding the allocation of goodwill and identifiable intangible assets although the different accounting treatments have the potential to create an opportunity to manage earnings. The finding appears to be in conflict with earlier researches obtained by Zhang and Zhang (2007) and Shalev et al. (2013) who advocate that the managements are more likely overallocation to goodwill relative to other intangible assets. In addition, CEOs whose compensation package depend on earnings-based bonuses and older CEOs, who have short-term contracts, are more likely to allocate purchase price to goodwill relative to other intangible assets. According to the results of this paper, the potential EPS dilution has no relationship with goodwill allocation to the identifiable intangible assets. It implies that the financial statement misreporting can be validated and corrected by the board of directors, independent audit committee and external auditors. To ensure the effective execution, their composition, qualifications, duties and responsibility should conform to the Stock Exchange of Thailand and the Thailand Securities and Exchange Commission's guidelines. Moreover, the acquirers' management in Thailand may realize the importance of good corporate governance and do not override the valuation and allocation process which prepared by qualified external appraisers. The external appraisers require to obtain licenses from the Thailand Securities and Exchange Commission. This implication is consistent with the prior researches to report

that the external appraisers can improve the credibility of financial reporting and reduce management reporting opportunism (Dietrich et al., 2001 and Muller and Riedl, 2002). However, it cannot be taken out completely because the management may capture the external appraisers. This results in the unreliable financial reporting.

CONCLUSION

According to accounting standards related to business combinations (TFRS 3 in Thailand, IFRS 3 in the international and SFAS 141 in the U.S.), purchase price allocation (PPA) is an application that allocates the purchase price to the fair value of identifiable assets acquired and liabilities assumed, with the residual goodwill. The standard-setters claim that the PPA information is relevant and informative to investors for assessing future profitability and cash flows. Nevertheless, this purpose is challenged by some academic researches (Zhang and Zhang (2007), Shalev (2009) and Shalev et al. (2013)) since the accounting standards permit to finalize the measurement of PPA process up to one year after acquisition date and valuation methods involve many judgments and assumptions that lead to unreliable and biased information. The PPA impacts on the financial statements in terms of the statement of financial position (the beginning balance of identifiable assets acquired and liabilities assumed) and statement of comprehensive income (post-acquisition earnings through depreciation, amortization and possible future impairment). Referred to the different accounting treatments between goodwill and intangible asset, there are greater incentives for earnings management as determined by Zhang and Zhang (2007) and Shalev et al. (2013). Since the goodwill is not subject to systematic amortization, the managements are more likely to overstate goodwill relative to other

intangible assets leading to higher post-acquisition earnings, earnings management and more benefits in their compensation plan. Goodwill is required to test for impairment at least annually, which involves the management's significant assumptions and judgments about the future operating results of the business, projected cash flows together with the discount rate. Although there is the potential risk of large goodwill impairment losses in the future, the management exercises greater discretion in the goodwill impairment test to avoid recognition of extraordinary losses (AbuGhazaleh, Al-Hares, Roberts, & Accounting, 2011) (Hassine, Jilani, & Sciences, 2017). However, the goodwill impairment losses are inevitable when the unexpectedly low earnings and economic downturn occur.

This paper examines whether the investors react to information content of PPA completion by capturing the investors' reaction surrounding the final disclosure of PPA information using completed M&A deals which acquirers listed on the Stock Exchange of Thailand and owned over 50% after transactions during 2010 – 2019. This result indicates that investors in the Stock Exchange of Thailand do not take the completed PPA information into consideration when making an investment. This finding conflicts with the previous academic researches from the U.S. evidence, which show that the investors negatively react to unexpectedly large amount of goodwill allocated from purchase price (Kimbrough (2007) and Paugam, L, Astolfi, P, Ramond, O (2015)). Due to the different practices between the U.S. and Thailand, I interpret that the different results arise from no disclosure requirement about estimation of PPA after the completion of acquisition and status of PPA in Thailand. Since the PPA information is hard to observe, it is less relevant to the

investors. Therefore, the investors have no need to wait for the completion of PPA information around one year after the acquisition date.

In addition, this research investigates the relationship between the percentage of goodwill allocation to the identifiable intangible assets and potential EPS dilution in order to find the greater discretion to allocate more purchase price to goodwill relative to intangible assets due to the different accounting treatments. Even though they have an opportunity for earnings management in terms of amount and volatility, this result has no signal manipulation or management preferences regarding the allocation of goodwill and identifiable intangible assets. It contrasts with the earlier researches which provide the evidences that the managements are more likely overallocation to goodwill relative to other intangible assets (Zhang and Zhang (2007) and Shalev et al. (2013)). An implication of the above result is that, the distortion of financial reporting is scrutinized and detected by the board of directors, independent audit committee and external auditors. Moreover, the external auditors and external appraisers who involve in the valuation process, are certified by the Thailand Securities and Exchange Commission. This is largely consistent with the prior researches to point out that the external appraisers can enhance the quality and creditability of financial reporting including reduce management reporting opportunism (Dietrich, Harris, Muller III, & Economics, 2000) and (Muller III & Riedl, 2002).

REFERENCES

- (IASB), I. A. S. B. (2018). International Reporting Financial Standard (IFRS) No. 3: Business Combinations – revised. Retrieved from <http://eifrs.ifrs.org/eifrs/bnstandards/en/IFRS3.pdf>
- AbuGhazaleh, N. M., Al-Hares, O. M., Roberts, C. J. J. o. I. F. M., & Accounting. (2011). Accounting discretion in goodwill impairments: UK evidence. *22(3)*, 165-204.
- Ball, R. J. A., & research, b. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *36(sup1)*, 5-27.
- Beatty, A., & Weber, J. J. J. o. a. r. (2006). Accounting discretion in fair value estimates: An examination of SFAS 142 goodwill impairments. *44(2)*, 257-288.
- Dietrich, J. R., Harris, M. S., Muller III, K. A. J. J. o. A., & Economics. (2000). The reliability of investment property fair value estimates. *30(2)*, 125-158.
- Hassine, N. M., Jilani, F. J. I. J. o. A. R. i. A., Finance, & Sciences, M. (2017). Earnings management behavior with respect to goodwill impairment losses under IAS 36: The French Case. *7(2)*, 177-196.
- Healy, P., Kutcher, L., Martinez-Jerez, A., & Ramana, K. (2007). Do Investors Rely on Purchase Price Allocation Disclosures?
- Kanodia, C., Sapra, H., & Venugopalan, R. J. J. o. A. R. (2004). Should intangibles be measured: What are the economic trade-offs? , *42(1)*, 89-120.
- Maines, L. A., & McDaniel, L. S. J. T. a. r. (2000). Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial-statement presentation format. *75(2)*, 179-207.

- Muller III, K. A., & Riedl, E. J. J. J. o. A. R. (2002). External monitoring of property appraisal estimates and information asymmetry. *40*(3), 865-881.
- Paugam, L., Astolfi, P., Ramond, O. J. J. o. A., & Policy, P. (2015). Accounting for business combinations: Do purchase price allocations matter? , *34*(4), 362-391.
- Penman, S. H. J. A. (2009). Accounting for intangible assets: There is also an income statement. *45*(3), 358-371.
- Shalev, R., Zhang, I. X., & Zhang, Y. J. J. o. A. R. (2013). CEO compensation and fair value accounting: Evidence from purchase price allocation. *51*(4), 819-854.
- Shalev, R. J. T. A. R. (2009). The information content of business combination disclosure level. *84*(1), 239-270.
- Skinner, D. J. J. A., & research, b. (2008). Accounting for intangibles—a critical review of policy recommendations. *38*(3), 191-204.
- Thailand Federation of Accounting Professions. (2019). Thai Financial Reporting Standard (TFRS) No. 3: Business Combinations – revised. Retrieved from http://eservice.tfac.or.th/get_file/index.php?file=TFRS_3_revised_2562.pdf
- Zhang, I., & Zhang, Y. (2007). Accounting discretion and purchase price allocation after acquisitions.

VITA

NAME Nonthawan U-thisanonth
DATE OF BIRTH 8 April 1991
PLACE OF BIRTH Bangkok, Thailand
INSTITUTIONS ATTENDED Chulalongkorn University
HOME ADDRESS 21/578 K.C.Naturalville Soi
Ramkhamhaeng142, Ramkhamhaeng Road,
Saphansung, Bangkok 10240



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY