PROPERTY FUNDS AND REITS RETURN IN PRIMARY AND SECONDARY MARKETS: EVIDENCE FROM THAILAND

BY

MISS JUTAMAS TEMWATTANANGKUL

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE PROGRAM IN FINANCE (INTERNATIONAL PROGRAM) FACULTY OF COMMERCE AND ACCOUNTANCY THAMMASAT UNIVERSITY ACADEMIC YEAR 2016

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ENTITLED

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was approved as partial fulfillment of the requirements for
the degree of Master of Science (Finance)

on 01 MAY 2017

Chairman _____
(Associate Professor Tatre Jantarakolica, Ph.D.)

Member and Advisor _____
(Assistant Professor Suluck Pattarathammas, DBA.)

Dean _____
(Associate Professor Pipop Udorn, Ph.D.)

Independent Study Title	PROPERTY FUNDS AND REITS RETURN IN PRIMARY AND SECONDARY MARKETS: EVIDENCE FROM THAILAND
Author	Miss Jutamas Temwattanangkul
Degree	Master of Science (Finance)
Major Field/Faculty/University	Master of Science Program in Finance (International Program) Faculty of Commerce and Accountancy Thammasat University
Independent Study Advisor	Assistant Professor Suluck Pattarathammas, DBA.
Academic Year	2016

ABSTRACT

This paper applies an event study to examine the primary and secondary market return in the first day trade of Thai's Property funds and REITs (PF&REITs) over the period 2003-November 2016. First, we use the abnormal return to analyze only the PF&REITs return without the market effect over them. However, when we estimate and test over the beta of PF&REITs return within 1 year, the beta value is not equal to 1 and close to 0, indicates that we should use the raw return to analyze rather than the abnormal return. The study finds that there is no underpricing effect over the initial return in Thai PF&REITs, leading to the disinterest for investors to invest them in the subscription period. We also regress the model to see the significant factors over the initial return. Size of PF&REITs, the value from sale securities is the significant over the return. As well as the PF&REITs focusing over the industrial and retail are the significant negative return over the initial return. While the other factors like holding period right and the diversify effect over PF&REITs, do not have the significant impacts over the initial return.

Keywords: Property Funds, REITs, Event study

ACKNOWLEDGEMENTS

First and foremost, I would like to appreciate and thanks my independent study advisor, Assistant Professor Suluck Pattarathammas DBA., for his magnificent helps in this successful and accomplish research and my graduation. For instance, he has many good comments and suggestions as well as his generous support throughout this study.

Moreover, I am grateful for my committee, Associate Professor Tatre Jantarakolica, Ph.D. for his assistance and guidance about econometrics for the models. I am also thanks all of the MIF's instructors, staffs and my friends for their helping and providing all facilities and knowledge to this successful study.

Finally, I most gratefully acknowledge my parents and family for all their support and encouragement throughout my study in MIF programs.

Ms. Jutamas Temwattanangkul

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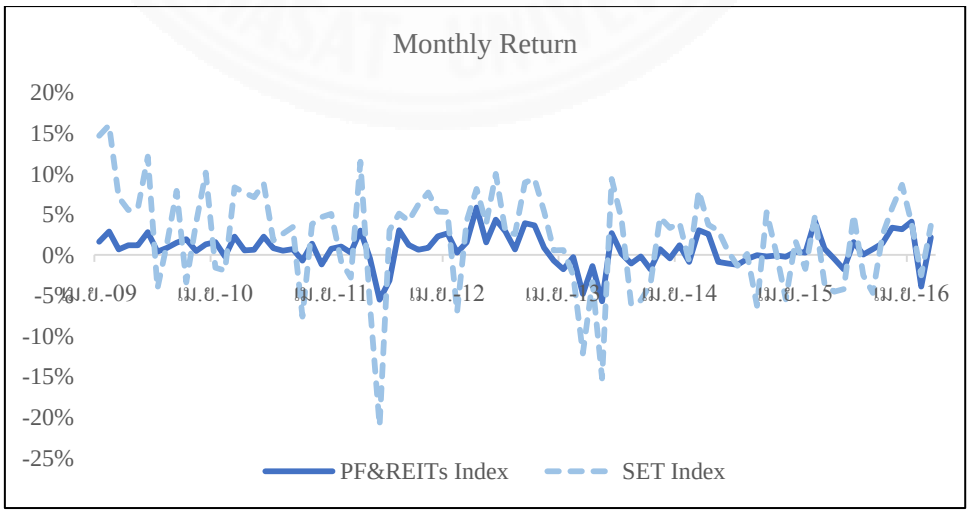
CHAPTER 1
INTRODUCTION

In the recent years, Thailand has just developed many products in Financial Market. One of these products is REITs, Real Estate Investment Trusts. REITs have improved from the Property Funds which have been launched since 2003 and have the surged growth in year 2012 – 2014. After that, there are the regulations which restrict the Property Funds issuing or investment increasing, and set up new issuing as REITs. REITs have many aspects like Property Funds but have more flexibilities in many terms like the investment properties, and leverage degree.

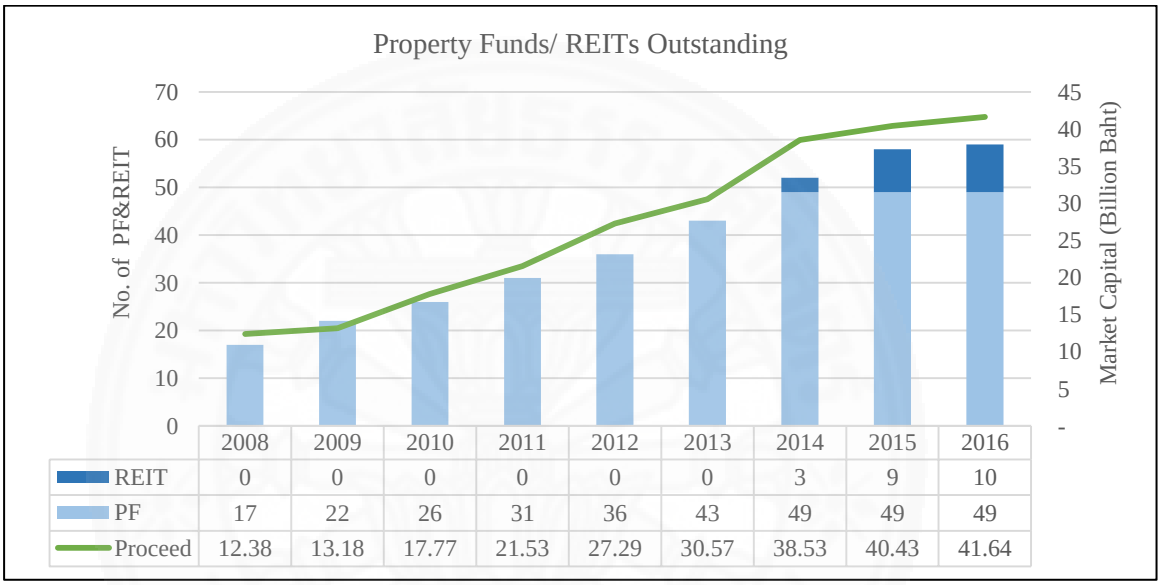
The major factor that makes Property Funds and REITs, PF&REITs, more attraction is the nature of these investments. PF&REITs let investors, who are interested in property investing, can invest in those properties through the close end funds or trusts with the lower budgeting and higher liquidity by trading in the stock market. These investment tools also have restricted over the dividend policy that must pay at least 90% of net income. For Thailand, these investments is seemingly safe in the value comparing with the market because they get the dividend return and have the lower return deviation which they do not give the huge in capital loss.

Figure 1.1: PF&REIT and the market monthly return (%) Source: Thomson Reuters



Moreover in the last decade, one of the Thai PF&REITs growth has been driven from new IPOs, especially in 2012 - 2014 which have many Property Funds entering to the market before the Property Funds' terminated. Hence, there is issuing from 36 funds in 2012 to 49 funds and 9 trusts in 2015.

Figure 1.2: Thailand PF&REIT IPOs statistic Source: SETSMART and Thomson Reuters



	2008	2009	2010	2011	2012	2013	2014	2015	2016
REIT	0	0	0	0	0	0	3	9	10
PF	17	22	26	31	36	43	49	49	49
Proceed	12.38	13.18	17.77	21.53	27.29	30.57	38.53	40.43	41.64

This study focuses on the Property Funds and REITs, PF&REITs, in Thailand which have the secondary market to bid and offer the fund units or trusts. This work concentrates on the different return in the primary and secondary markets and the factors that have most impacts on these returns. As for the return in each market, we conduct the abnormal return in the return movement over the first day trade and during some periods of time after the initial public offering in the stock market for our analyses.

The most researches show that equities IPO, excluding REITs, is underprice[1] which make the investors get the high return in the primary market and leave the lower return or nothing in the secondary market of first day trade. Also lot of researches have examined in the REITs return which have the same return like

[1] Underpricing is occurred when the companies sell their securities to public during the initial public offering (IPO) at offer price below the market price of those securities to trade on the first day trade.

equities IPO but level of underpricing is different where Dolvin and Pyles (2009) study show that the equities IPO is more underpricing than REITs. From the Chan, Chen, and Wang (2013) study, in the U.S. and the other countries including Thailand there have the low initial return and offset by the negative return within the 189 days after the initial public offering. There have not yet studied in PF&REITs return in the primary and secondary market, the level of the underpricing between Non-PF&REITs and PF&REITs IPO and the explanatory variables of the potential influencing the performance in Thailand. Consequence, this study attempt to get the results for PF&REITs behavior in Thailand such as the return pattern in the primary and secondary market comparing with Non-PF&REIT IPOs, the influential factors over the PF&REITs performance, and properties focus types which have the most effect over the PF&REIT return.

As for the contributions, this study will help investors, portfolio managements and whom interesting in PF&REITs to know the return in each market and use this study to find the appropriate factors such as properties classification, and property holding rights to determine the beneficial investing.

The remainder of this paper is arranged as follows. First, we review the literature over the IPO underpricing. Second, we look at the theoretical framework especially PF&REITs in Thailand. A research methodology and data analyses are presented and closed by the conclusions.

CHAPTER 2
REVIEW OF LITERATURE

The existing IPO literature have analyzed over the IPO pricing and found that there is the IPO underpricing which make the investors to have the good perceptions from getting the capital gain of those investments in the primary market. Those literatures define the IPO underpricing as the percentage difference between the offer price and the closing price on the first day trade in the market exchange, offer-to-close. For example, Loughran and Ritter (2002), conduct the research under 3,025 listed firms from year 1990 – 1998 which excluded Unit offering such as closed-end fund, REITs, and American depository receipts (ADR). They find a significant first-day return over offer-to-close around 14%.

In addition, Dolvin and Pyles (2009) claim that REIT IPOs have lower initial-day return relative to traditional IPO resulting from the reducing in complexity of valuing the asset which can use the report to estimate the cash flow from the occupancy rate and rent rate. There is also having a price reversion from reduced information asymmetry after IPO. The result is the same as well as Chan, Chen and Wang (2013) examine 370 REIT IPOs returns between 1996-2010 in 14 countries, including Thailand and find that there is the same initial-day return pattern to have the higher return in the initial day. Then, there are underperform and offset the positive initial-day return within 189 days after the IPO date. The study also mentions that the relative underpricing between REITs and Non-REITs in Thailand is 43.57%, highest value in 14 countries. However, they do not control any characteristics and IPO period for REITs and Non-REITs comparison. Stevenson et al. (2014) have extended the negative abnormal return, 1.41% in Australia and identified the variables that affect to the long-term performance of REIT IPOs in one and three years. The study shows that the issue size has the significant over one year CAR and BHAR.

Moreover, Wong, Ong and Ooi (2011) have analyzed on the sponsor backing in ASIAN REIT IPO. Sponsors are pre-IPO shareholders/investors who are the board representations and have considered the IPO offer price setting process. The study claims that higher sponsor reputation and sponsor ownership tend to be underpricing.

As for the secondary market return, Bradley et al. (2009) investigate in the first day trade return, percentage difference between the open price and the closing price as the representative of the secondary market return during the 1993–2003. The results show that there is an average open-to-close return about 2.3%, almost this return is occurred in the first 30 minutes trading and the price reaches the equilibrium approximately 2 hours after trading.

Regarding to the REITs return in the primary and secondary market, there is Gokkaya et al. (2015) which have analyzed 126 REIT IPOs in United Stated of America. The study use the percentage change between the offer price and the open price as the proxy of the primary market return and the percentage change between the open price and the closing price for the secondary market return. The paper show that almost the average REIT initial returns have occurred in the opening trading period (offer-to-open) around 97%, leaving no opportunities for profit in the secondary market. These concepts are consistent for Non-REIT IPOs but the REIT IPOs have the lower return in the primary market. The different characteristics of REITs also impact the return. Single property REITs tend to have the lower offer-to-open return than multi-investment REITs.

This study conducts its analysis following the Gokkaya et al. (2015) research under the Thailand PF&REIT market. However there is difference in the financial instruments which this study analyzes on both PF&REIT in Thailand because of the similar nature of the instruments and Thai regulations.

CHAPTER 3
THEORETICAL FRAMEWORK

3.1 Property funds and REITs in Thailand

In Thailand REITs develop from the Property Funds, so they have the similarity in many aspects such as the dividend payout ratio. However, REITs have some differences from Property Funds in many terms. For example, REITs can invest in the real estate under development (Green-field project) not greater than 10% of the total assets as well as having the permission to invest in the oversea properties. REITs also have the higher leverage level that is not exceeding 35% of the total assets and not exceeding 60% in the case of investment rating REITs as summarized below.[2] However, these distinctions are not affecting the return of PF&REIT since people treated them to be the same investments in Thailand.

Table 3.1: Property Fund and REIT in Thailand comparing

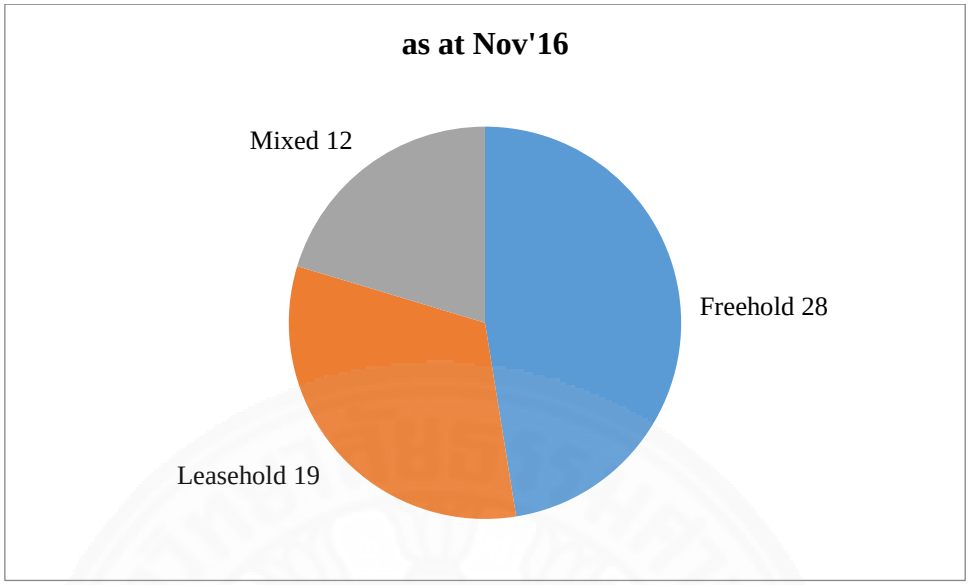
Topic	Property Fund	REIT
General		
Legal Structure	Mutual fund	Trust
Minimum Size	Not less than 500 million Baht	Same
Holding Restriction for Any Person or Group of Persons	No more than 1/3 of the total number of investment units	No more than 50% of the total number of REIT units and of each tranche (if any)
Investment		
Type of property in which investment can be made	Only ones listed on the SEC's positive list	Not specified; however, the real estate shall not be used by the lessee to operate immoral or illegal business
Investment in real estate abroad	Not permitted	Permitted

[2] Source: Stock Exchange of Thailand

Topic	Property Fund	REIT
Development of real estate	Not permitted	Not exceeding 10% of the total assets
Leverage limit	Not exceeding 10% of the net asset value (NAV)	Not exceeding 35% of the total assets and not exceeding 60% in the case REIT has received an investment grade.

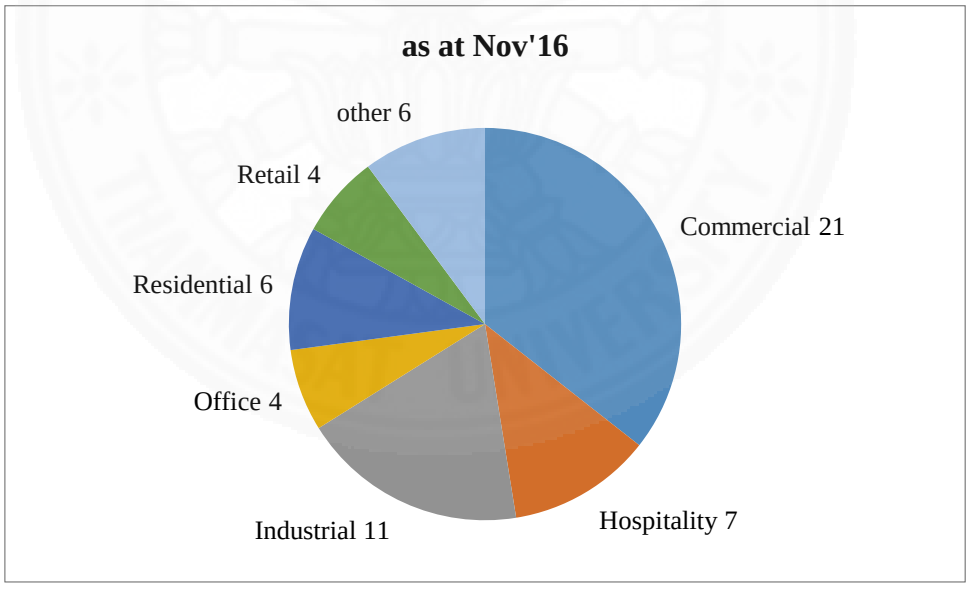
Regarding the type of PF&REITs, Thailand has only the equity PF&REITs. The steps to establish PF&REITs are as following. First, Trustee creates the unit trust or fund unit for investors to invest in the pool fund. Then he use this fund to buy the real estate or the real estate holding right. PF&REITs manger manages real estate to generate the rental income and distribute the income to investors. PF&REITs can breakdown into 3 groups based on the right over the properties, freehold, leasehold, and mixed. As for the freehold right, the owners have the permanent right over the properties until they expose, hence the price is consistency over the time given the others constant. In contrast, leasehold right is that the owners have leased to use the properties from the freeholder for the certainty period. Hence the investment price drop when the leasehold life decrease. The last one, mixed is the combination of the freehold and leasehold right. Based on the Thomson Reuters, PF&REIT in Thailand have classified into 7 groups: Commercial, Hospitality, Industrial, Office, Residential, Retail, and Other.

Figure 3.1: PF&REIT classification over the Holding Right



Source: Thomson Reuters and http://thaipropertyfund.com/

Figure 3.2: PF&REIT classification over the Property Classification



Source: Thomson Reuters

3.2 IPO Underpricing

Several studies have explained the IPO underpricing for the investments by using the initial return, the percentage change between the offer price and the closing price, on the first day trade in the stock exchange as the proxy of the price effects of initial public offerings. The IPO underpricing reflects the two concepts. First of all,

there is the information asymmetry between the counterparties (issuers, underwriters, and investors). For example, investors are informed the IPO firm information less than the others, they are perceived that IPO is risky and lead to have the higher return to compensate the risk. The underwriters will announce the underpricing offer price which encourages investors to participate in the IPO.

Second, the IPO pricing is depend on the underwriters' abilities to analyze, forecast the properly expected future outcomes and get the appropriate price. PF&REIT IPOs underpricing has the lower effect than Non- PF&REIT IPOs underpricing regarding to the underwriters' abilities because PF&REITs hold the properties that easily to project from the occupancy rate and rental rate that have agreed in the contracts. Hence, the information asymmetry is the remaining roles for the PF&REIT IPOs underpricing to make the positive initial return.

3.3 Primary and Secondary Market

The financial market to raise the fund can classify into 2 groups, primary market and secondary market. The primary market is the market to issuing the new securities dealing and selling of these securities to the issuers. While the secondary market is the place to increase the securities liquidity that investors can purchase securities from other investors, rather than from issuers.

The studies have also separated the initial return into two groups, the percentage change between the offer price and the open price on the first day trade as primary market proxy and the percentage change between the open price and the closing price on the first day trade as primary market proxy. Gokkaya et al. (2015) analyze that 97% of the REITs initial return occurs in the primary market, offer to open price return and there is a little intraday return for the secondary market.

CHAPTER 4
RESEARCH METHODOLOGY

4.1 Parameter

To determine the IPO underpricing, there are three return measures: **total underpricing, offer-to-open, and open-to-close**. Unlike Gokkaya et al. (2015) which use the ex post beta coefficient over the difference between the REITs and market daily return for the first six months of trading to be the explanatory variable, this study uses the market-adjusted approach like Stevenson et al. (2014) with using the SET Index[3] as the market representative. It is unappropriated for using the future beta to see the independent variable, historical return. Moreover the market adjusted return is practical for eliminate the other effects such as market return over the independent variable. The total underpricing is the percentage difference between offer price and the closing price (offer-to-close) in the first day trade (IPO day) under the market-adjusted approach. Like many studies, Loughran and Ritter (2002) who found that IPO pricing is underprice from the offer-to-close return around 14% in 1990-1998, making the investors to get the immediately return from invest in these IPOs. In order to determine the return in primary and secondary market on the initial return, we dissect initial return into two groups, offer-to-open, the percentage difference between offer price and the open price in IPO day under the market-adjusted approach, and open-to-close, the percentage difference between open price and the closing price in IPO day under the market-adjusted approach as the primary and secondary market proxy respectively.

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \quad (1)$$

where $_{i,t}$ is the trading price for PF&REIT i in time t

$_{i,t-1}$ is the trading price for PF&REIT i in time t-1

$_{i,t}$ is the dividend for PF&REIT i in time t

[3] Since PF&REIT have the low liquidity comparing to the investment in the Stock Exchange of Thailand, it is reasonable for use SET Index as the proxy of the market.

This paper uses the capital gains (losses) to examine since we analyze only the return in primary and secondary market in the first day trade which do not have any dividend to consider.

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (2)$$

where $R_{i,t}$ is the abnormal return for PF&REIT i in time t

$_{i,t}$ is the return for PF&REIT i in time t

$_{m,t}$ is the return for SET index in time t

We use MKT-Offer-to-Close which is the market return between the closing price of the first day trade (t) and the closing price of the first subscription day for each IPO as the market adjusted for Offer-to-Close. Regarding to market adjusted of the primary and secondary market on the initial return, which break down into two groups, MKT-Offer-to-Open, the market return between closing price of the first subscription day for each IPOs and the open price in the first day trade (t), and MKT-Open-to-Close, the market return between market open price and the market closing price in the first day trade.

To determine the factors which have affected the PF&REIT IPO underpricing, we use the PF&REIT expected return from the equation (2) to find the effects of each independent variables. First variable is the **Proceeds**, the value from sale securities in IPO. From the Fama and French three factors model, one of those factors is size effect where the small market capitalization is outperform the larger companies. To capture the size effect in the IPO pricing process, we use **Size**, the natural logarithm of the Proceeds to be the proxy like the Stevenson et al. (2014) that use the LNPROCEEDS variable as the natural logarithm of the subscription price multiplied by the number of offering shares.

Regarding to the PF&REIT investment property type, there is classified into 2 groups, single property and diversify property[4]. From many studies, the investors like the diversify property regardless the cost of going public because there is lower risk

[4] As for the diversify property, in Thailand the PF&REIT normally have only one property type. However, for some PF&REIT have diversify risk by the investment property area. Hence this study conduct on the area diversifies.

leading to the higher demand for risk averse investor and the higher initial return. To analyze the diversification, **Property Type** is the binary variable where one is equal to the many property area owned by PF&REITs at the IPO and zero is otherwise. As for the classification of REITs holding property, there is mainly in 6 classes, **Hospitality, Industrial, Office, Residential, Retail, and Other**[5] which are the binary variables and have the Other class as the base to compare. Regarding to the holding right over the properties, there is 3 rights, **Freehold, Leasehold, and Mixed** which are the binary variable and have the Mixed class as the base to compare.

4.2 Determining the univariate analysis: PF&REIT initial return

First of all, we perform the univariate analysis. There is to analyze the three PF&REITs IPO returns, total underpricing, offer-to-open, and open-to-close into sub groups. To examine the potential variations over the PF&REITs initial return based on the PF&REITs characteristics, we employ T-test analysis. Sub groups are PF&REITs classification (Hospitality, Industrial, Office, Residential, Retail, and Other), PF&REITs holding rights (Freehold, Leasehold, and Mixed), and PF&REITs property type (Single holding property area, and Many holding property areas).

4.3 Determining the multivariate analysis: PF&REIT initial return

Next, we would like to get the estimate value and p-value for each factor in order to determine the significant effect over the initial return. We apply the OLS regression[6] with the following model.

[5] *Hospitality* represents PF&REIT whose real assets are based in the Hotel business. *Industrial* represent PF&REIT whose real assets are based in the broad range of capital-intensive industries. *Office* represents PF&REIT whose real assets are based in the office rental properties. *Residential* represent PF&REIT whose real assets are based in the residential units. *Retail* represents PF&REIT whose real assets are based in the malls, shopping centers, and other retail properties. *Other* represents PF&REIT whose real assets are not in the above types such as self-storage rental properties.

[6] There is employed OLS regression because this analysis based on the REITs IPOs for the different in time and different in the observation.

$$AR_{i,m} = \alpha_{i,m} + \beta_{1,m}Size_i + \beta_{2,m}Proterty\ Type_i + \beta_{3,m}Hospitality_i + \beta_{4,m}Industrial_i + \beta_{5,m}Office_i + \beta_{6,m}Residential_i + \beta_{7,m}Retail_i + \beta_{8,m}Freehold_i + \beta_{9,m}Leasehold_i + \varepsilon_{i,m} \quad (3)$$

where $R_{i,m}$ is the abnormal return for PF&REIT i measure by the m methods, total underpricing, offer-to-open, and open-to-close

4.4 Determining the univariate analysis: PF&REIT and Non-PF&REIT initial return

To determine the different degree of IPO underpricing between PF&REITs and Non-PF&REITs, Dolvin and Pyles (2009) have control over the matching Non-REITs IPOs which issue within before and after 30 days of REITs IPO issuance and have the similar size. Based on the different in mean analyze of the REITs and Non-REITs, Gokkaya et al. (2015) find that Non-REIT IPOs have the higher level of underpricing around 9.3%

To match equity IPOs with PF&REITs IPO, we have controlled over the issuance size and IPO date. Non-PPF&REITs are the equity stocks which issue within before or after 90 days of PF&REITs IPO issuance and have the similar size, the issue market capital is in range 50%-150%.

4.5 Determining the multivariate analysis: PF&REIT and Non-PF&REIT initial return

This model continues the univariate analysis expansion, to see the factors that could significant effects on the underpricing. To identify the difference of PF&REITs and Non-PF&REITs IPOs, we use the **PF&REIT** binary variable where one is equal to the PF&REIT IPOs and zero is otherwise.

$$AR_{i,m} = \alpha_{i,m} + \beta_{1,m}Size_i + \beta_{2,m}PF\&REIT_i + \varepsilon_{i,m} \quad (4)$$

where $R_{i,m}$ is the abnormal return for PF&REIT and Non- REIT i measure by the m methods, total underpricing, offer-to-open, and open-to-close

Table 4.1: Summarized effects over the PF&REIT IPO underpricing

Effects	Independent Variables	Explanation	Expected Sign[7]
Size effect	○ Size	The small capital companies tend to have a more volatile business environment and lead to have higher underpricing effect.	-
Diversify effect	○ Property Type	Diversification is the process of allocating capital in a way that reduces the exposure or the risk. Property Type variable is the binary variable for single holding property area. The single holding has concentrate risk then there is the lower price according to the uncertainty and lead to the lower underpricing.	+
Property holding period effect	○ Freehold ○ Leasehold	When the PF&REIT hold the leasehold right over the properties, the properties right decrease in line with the remaining right period and tend to lower attraction and higher risk comparing with the freehold right or mixed.	+ where leasehold is higher underpricing
Underpricing Degree	○ PF&REIT	PF&REIT have the recurring income from rental which is more accurate cash flow from the occupancy rate and rent rate.	-

[7] Positive sign (+) reflect the effect in line with the underpricing and Negative sign (-) reflect the opposite effect.

4.6 Robustness Test

As for robustness check, this study uses the raw return before the market adjusted of the PF&REITs and matching Non-PF&REITs to see the PF&REITs underpricing.

CHAPTER 5
DATA

As of November 2016, the companies in Thailand have already launched the PF&REIT IPO totaling 59 funds excluding a Property Fund which does not have any transactions. This study focuses on all Thai PF&REITs which issued from November 2003 to November 2016 and matching Non-PF&REIT IPO. We collect the IPOs data such as the offer price, first trading date, and the subscription period from SETSMART. As well as, the issuing market capital on IPO date is obtained from Thomson Reuters. We also check the correctness of these data with the Prospectus/filings that disclosed in The Securities and Exchange Commission website. From those filings, we also collect the IPO properties characteristics. The open price, closing price on the first day trade, closing price after the initial day, and SET index are collected from Thomson Reuters.

Table 5.1 shows that PF&REITs have the negative return in the initial market, Offer-to-Close about -1.78% and -3.14% after the market adjustment, AR Offer-to-Close. While the primary market return is positive, Offer-to-Open about 2.09% and 0.76% after the market adjustment, AR Offer-to-Open. Hence the return of the underpricing effect is occurred only the primary market in the IPO date.

Table 5.1: Descriptive Statistics for PF&REIT initial return

Variable	Obs	Mean	Std Dev	Minimum	Maximum
Offer Price (Baht)	59	10.04	0.14	10.00	10.60
Open Price (Baht)	59	10.26	1.80	3.95	17.76
Close Price (Baht)	59	9.87	1.32	3.83	14.38
MKT Offer Price (Baht)	59	1,074.71	356.82	391.85	1,598.13
MKT Open Price (Baht)	59	1,080.86	342.23	430.59	1,596.29
MKT Close Price (Baht)	59	1,081.98	344.41	431.50	1,587.35
Offer-to-Close	59	-1.78%	12.94%	-61.68%	43.76%
Offer-to-Open	59	2.09%	17.91%	-60.53%	77.63%
Open-to-Close	59	-2.79%	8.96%	-45.00%	11.54%
MKT Offer-to-Close	59	1.36%	6.76%	-28.44%	15.30%
MKT Offer-to-Open	59	1.33%	7.07%	-31.67%	15.69%
MKT Open-to-Close	59	0.06%	1.10%	-2.57%	4.72%

Variable	Obs	Mean	Std Dev	Minimum	Maximum
AR Offer-to-Close	59	-3.14%	14.25%	-64.46%	43.33%
AR Offer-to-Open	59	0.76%	19.03%	-63.79%	73.71%
AR Open-to-Close	59	-2.86%	9.13%	-46.06%	11.48%
Proceed (M. Baht)	59	7,056.95	10,340.51	205.51	46,059.13
Size (Ln(M. Baht))	59	21.79	1.38	19.14	24.55

However, there are the outliers over the abnormal return leading to high standard deviation and the power of the testing in next chapter. Hence, we eliminate the outliers which abnormal return are not in range [-30%, 30%] for every type of abnormal return, AR Offer-to-Close, AR Offer-to-Open, and AR Open-to-Close. The new data descriptive is shown in Table 5.2

Table 5.2: Descriptive Statistics for PF&REIT initial return (Outlier Emination)

Variable	Obs	Mean	Std Dev	Minimum	Maximum
Offer Price (Baht)	52	10.05	0.14	10.00	10.60
Open Price (Baht)	52	10.16	0.66	8.76	13.00
Close Price (Baht)	52	10.02	0.66	8.81	13.00
MKT Offer Price (Baht)	52	1,087.33	363.25	391.85	1,598.13
MKT Open Price (Baht)	52	1,090.91	348.87	430.59	1,596.29
MKT Close Price (Baht)	52	1,092.28	350.98	431.50	1,587.35
Offer-to-Close	52	-0.32%	6.08%	-11.93%	26.21%
Offer-to-Open	52	1.06%	6.22%	-12.37%	26.21%
Open-to-Close	52	-1.27%	4.28%	-17.69%	7.69%
MKT Offer-to-Close	52	1.14%	7.12%	-28.44%	15.30%
MKT Offer-to-Open	52	1.08%	7.42%	-31.67%	15.69%
MKT Open-to-Close	52	0.09%	1.13%	-2.57%	4.72%
AR Offer-to-Close	52	-1.46%	7.68%	-19.03%	22.17%
AR Offer-to-Open	52	-0.01%	8.13%	-12.97%	25.22%
AR Open-to-Close	52	-1.37%	4.39%	-18.55%	7.00%
Proceed (M. Baht)	52	7,624.46	10,804.69	205.51	46,059.13
Size (Ln(M. Baht))	52	21.90	1.37	19.14	24.55

Table 5.2 shows that the returns are in line with the previous table while the standard deviations are reducing. The underpricing effect is existing in PF&REITs initial return which the Offer-to-Open is 1.06%, whereas Offer-to-Close is -1.27%.

This study also concerns the different in the underpricing degree between PF&REITs and Non-PF&REITs. To matching the similarity of PF&REITs with Non-PF&REITs, we control the market issuance size and IPO date which the market capital around 50% - 150% of PF&REITs proceed and IPO date within 90 days from PF&REITs initial date. Thus, we identify the 30 PF&REITs mapping with identified Non-PF&REITs.

Table 5.3 shows the different return between PF&REITs and Non-PF&REITs IPO. Non-PF&REITs are more underpricing comparing with PF&REITs overall about 33.22% and mainly occur in the primary market (30.90% ÷ 33.22% = 93.02%) like Dolvin and Pyles (2009) study.

Table 5.3: Descriptive Statistics for PF&REIT and Non-PF&REIT initial return

Variable	PF&REIT		NON-PF&REIT		Difference
	Obs	Mean	Obs	Mean	
Offer Price (Baht)	30	10.09	30	6.61	3.48
Open Price (Baht)	30	10.16	30	7.47	2.69
Close Price (Baht)	30	9.98	30	7.49	2.50
MKT Sub Date	30	1,213.24	30	1,216.71	(3.48)
MKT Close	30	1,210.55	30	1,213.96	(3.41)
MKT Open	30	1,211.62	30	1,211.14	0.48
Offer-to-Close	30	-1.06%	30	31.14%	-32.20%
Offer-to-Open	30	0.68%	30	30.73%	-30.05%
Open-to-Close	30	-1.64%	30	0.12%	-1.77%
MKT Sub-to-Close	30	0.51%	30	-0.52%	1.03%
MKT Close-to-Open	30	0.56%	30	-0.29%	0.85%
MKT Open-to-Close	30	-0.03%	30	-0.24%	0.21%
AR Offer-to-Close	30	-1.56%	30	31.66%	-33.22%
AR Offer-to-Open	30	0.13%	30	31.03%	-30.90%
AR Open-to-Close	30	-1.62%	30	0.36%	-1.98%
Proceed (M.Baht)	30	7,712.96	30	8,881.92	(1,168.96)
Size (Ln(M.Baht))	30	22.10	30	22.28	(0.19)

CHAPTER 6
RESULT AND DISCUSSION

6.1 Determining the univariate analysis: PF&REIT initial return

First of all, we perform the univariate analysis to see the effect over the initial return for each sub group. In Table 6.1 Panel A, the study show that PF&REITs have the non-negative value in the primary market under Market Adjusted Return, AR-Offer-to-Open, only for Hospitality REITs and Self-Storage REITs. While the secondary market has the negative value for almost focusing except Retail REITs that means the PF&REIT pricing is reversal to the market accepted price during the day. However, Industrial REITs are significant overpricing rather than underpricing for the entirely IPO day due to their features. Industrial property characteristics have lower turnover rate on factory rental. The lessees use the spaces for their manufacturing, the rental contract is signed in the long term as well as the rent rate. Comparing with the daily lease period, Hospitality REITs have high rental turnover rate. They could have higher information asymmetry or cash flow risk, and might lead to more underpricing.

Table 6.1: Univariate Analysis: Sort by the PF&REIT Characteristics

	Obs	AR Offer-to-Close	AR Offer-to-Open	AR Open-to-Close
Panel A: Returns by PF&REIT property focus				
Hospitality REITs	13	0.72%	2.53%	-1.85%
Industrial REITs	10	-4.83%***	-0.87%	-3.56%*
Office REITs	10	-1.73%	-1.47%	-0.29%
Residential REITs	5	-1.47%	-0.44%	-0.95%
Retail REITs	9	-3.36%	-3.84%	0.45%
Self-Storage REITs	5	3.57%	5.28%	-1.58%
Total	52	-1.46%	-0.01%	-1.37%**
Panel B: Returns by PF&REIT property holding right				
Freehold	24	-2.36%	-0.61%	-1.63%*
Leasehold	17	-1.15%	-0.79%	-0.47%
Mixed	11	0.01%	2.48%*	-2.12%
Total	52	-1.46%	-0.01%	-1.37%**

	Obs	AR Offer-to-Close	AR Offer-to-Open	AR Open-to-Close
Panel C: Returns by PF&REIT property diversification by area				
Single Property	43	-1.49%	-0.42%	-1.06%*
Diversify Property	9	-1.32%	1.91%	-2.84%
Total	52	-1.46%	-0.01%	-1.37%**

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

As for the property holding right, the leasehold right value decreases from time to time. There is the higher risk comparing with freehold right, hence the investor require higher return or more underpricing. While the freehold rights are more attractive and have significant negative return about 1.63% in the secondary market, AR Open-to-Close as shown in Table 6.1 Panel B.

Moreover, the diversify make the investors feel safer from the concentrate risk and require the lower risk compensate return or lower underpricing which diversify properties have the higher return like the result in Table 6.1 Panel C.

Since the populations are too little and might lead to appropriate model problem which has the negative adjusted R squared, we add the addition testing like non-parametric test to ensure that the result between the parametric test and non-parametric test are indifferent.

Under the Wilcoxon signed-rank test, we would like to see the significant characteristics which make the abnormal return median fluctuation from zero. From Table 6.2, the results are similar to the parametric test in Table 6.1.

Table 6.2 Non-Parametric Analysis: Sort by the PF&REIT Characteristics

	Obs	AR Offer-to-Close	AR Offer-to-Open	AR Open-to-Close
Panel A: Returns by PF&REIT property focus				
Hospitality REITs	13	1.21%	2.25%	-0.87%*
Industrial REITs	10	-4.54%***	-3.28%	-1.00%**
Office REITs	10	-1.34%	-2.24%	0.21%
Residential REITs	5	-2.63%	0.63%	-0.43%
Retail REITs	9	-1.11%	-1.52%	0.41%
Self-Storage REITs	5	2.84%	1.35%	0.08%
Total	52	-1.29%	-0.34%	-0.43%**
Panel B: Returns by PF&REIT property holding right				
Freehold	24	-1.58%	-1.42%	-0.47%
Leasehold	17	-2.69%	-1.52%	-0.43%
Mixed	11	0.50%	0.71%	-0.36%
Total	52	-1.29%	-0.34%	-0.43%**
Panel C: Returns by PF&REIT property diversification by area				
Single Property	43	0.02%	-0.40%	-0.47%*
Diversify Property	9	-3.99%	-0.10%	-0.32%
Total	52	-1.29%	-0.34%	-0.43%**

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

6.2 Determining the multivariate analysis: PF&REIT initial return

Table 6.3 provide the multivariate analysis for the PF&REITs initial return. The study shows that there is the significant relationship between size and abnormal return in the initial return especially in the secondary market.

Next, the holding right over the properties have the positive relation with the initial return. The results are not significant which means investors do not feel any differences over the holding right. However, they feel the distinctions over the properties focusing. The results show that Industrial REITs and Retail REITs are significant non positive relation with initial return. It is seemingly that investors do not like the Industrial REITs and Retail REITs since they think that those REITs are

not giving them the abnormal return. They can invest in the market and getting the higher return.

Table 6.3: Multivariate Analysis of the PF&REIT initial return

	AR Offer-to-Close		AR Offer-to-Open		AR Open-to-Close	
Variable	**Estimate**	**P-Value**	**Estimate**	**P-Value**	**Estimate**	**P-Value**
Size	0.0262*	0.0580	0.0075	0.5640	0.0173***	0.0090
Property Type	0.0449	0.3150	0.0487	0.2550	-0.0028	0.8920
Hospitality	-0.0413	0.4330	-0.0273	0.5860	-0.0134	0.5870
Industrial	-0.1190**	0.0380	-0.0881	0.1040	-0.0277	0.2940
Office	-0.0438	0.4340	-0.0457	0.3940	0.0008	0.9760
Residential	-0.0288	0.6450	-0.0513	0.3930	0.0214	0.4680
Retail	-0.1418**	0.0280	-0.1174*	0.0560	-0.0205	0.4900
Freehold	0.0045	0.9090	-0.0198	0.5980	0.0218	0.2420
Leasehold	0.0410	0.3370	0.0128	0.7540	0.0229	0.2550
Constant	-0.5357*	0.0820	-0.1050	0.7170	-0.3972***	0.0070
F-Test	0.2357		0.5264		0.2572	
R^2	0.2211		0.1630		0.2201	
Adj. R^2	0.0542		-0.0163		0.0530	

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

6.3 Determining the univariate analysis: PF&REIT and Non-PF&REIT initial return

Using matching Non-PF&REITs which issue within 90 days before or after PF&REITs IPO day and issue market capital is in range 50%-150% of PF&REITs market capital issuance. Non-PF&REIT IPOs are significant more underpricing in Thailand and consistent with Chan, Chen, and Wang (2013). Table 6.4 show us that PF&REIT IPOs have significant less initial abnormal return around 33.22% and mainly occur in the primary market around 93.02% (30.90% ÷ 33.22% = 93.02%).

Table 6.4: Univariate Analysis between PF&REIT and Non-PF&REIT initial return

Variable	PF&REIT (A)	Non-PF&REIT (B)	Difference (A-B)	P-Value
Offer Price (Baht)	10.09	6.61	3.48***	0.0035
Open Price (Baht)	10.16	7.47	2.69**	0.0194
Close Price (Baht)	9.98	7.49	2.50**	0.0350
AR Offer-to-Close	-1.56%	31.66%	-33.22%**	0.0191
AR Offer-to-Open	0.13%	31.03%	-30.90%**	0.0196
AR Open-to-Close	-1.62%	0.36%	-1.98%	0.6224
PROCEED	7,712.96	8,881.92	(1,168.96)	0.6710
SIZE	22.10	22.28	(0.19)	0.5346

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

6.4 Determining the multivariate analysis: PF&REIT and Non-PF&REIT initial return

Table 6.5 is shown the extended test, the different underpricing degree over PF&REITs and Non-PF&REITs. There are no any significant factors. It is only show that Non-PF&REITs are significant more underpricing like Table 6.4. The reason behind the different underpricing degree is the nature of the investment instrument which lead to the different risk and return. PF&REITs have less price uncertainty because PF&REITs have the recurring income from rental which is more accurate cash flow from the occupancy rate and rent rate, and able to know more precise dividend yield which lead to find the equilibrium price easily than Non-PF&REITs.

Table 6.5: Multivariate Analysis between PF&REIT and Non-PF&REIT initial return

Variable	AR Offer-to-Close		AR Offer-to-Open		AR Open-to-Close	
	Estimate	**P-Value**	**Estimate**	**P-Value**	**Estimate**	**P-Value**
SIZE	0.3387	0.5800	0.0051	0.9290	0.0097	0.5840
REIT	-0.3259**	0.0230	-0.3080**	0.0210	-0.0180	0.6580
CONSTANT	-0.4382	0.7480	0.1966	0.8780	-0.2132	0.5910
Obs	60		60		60	
F-Test	0.0564		0.0670		0.7621	
R^2	0.0960		0.0905		0.0095	
Adj. R^2	0.0643		0.0586		-0.0253	

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Moreover, when we use the abnormal return under the market model, it is likely that PF&REITs and Non-PF&REITs have related only the market return, Beta equals to 1. In order to ensure that the market model is appropriate for the testing, we collect the trading data after the IPO, estimate the beta by using the PF&REITs and Non-PF&REITs return within 1 year, and test the beta under the null hypothesis, beta is equal to 1. From Table 6.6, PF&REITs' beta equals to 0.0641, the estimation is close to 0. We can imply that using market adjusted returns might underestimate the abnormal return. Hence, the robustness test without market adjusted return might be the better alternative to estimate the PF&REITs return in the primary and secondary market.

Table 6.6: Beta testing less than 1 year performance

Variable	PF&REITs		Non-PF&REITs	
	Estimate	**P-Value**	**Estimate**	**P-Value**
MKT_RET	0.0641***	0.0000	0.8214***	0.0000

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

CHAPTER 7
ROBUSTNESS TEST

To test the initial return of the PF&REITs in the primary market and secondary market, we use the market-adjusted return where have eliminated the overall market effect and left only the PF&REITs return effect. The study shows that PF&REITs are underprice and get the abnormal return in the primary market. While in the secondary market, PF&REITs leaves the negative return to offset the advance abnormal return. Here comes another question that if we use the raw return rather than market adjusted-return, the results should be the same or not. We employ the robustness test with the OLS regression diagnostic including White heteroscedasticity, and VIF test like the PF&REITs market adjusted return which we perform in the previous chapter. The results are similar to the PF&REIT market adjusted as follows.

Under the univariate analysis over the PF&REITs initial return, there is the positive return in the primary market around 1.06% while there is the significant negative return in the secondary market, leading to the negative initial return. Regarding to the PF&REITs property focusing, there are the positive initial return, resulting from the primary market, whereas there is negative in the secondary market. However, Industrial REITs are significant overpricing rather than underpricing in the initial return except Hospitality REITs and Industrial REITs. Like the market adjusted return, Industrial REITs are significant overpricing rather than underpricing for the initial return. As for the property holding right, there are the significant underpricing over the freehold right about 1.55% in the primary market which offset by the significant negative return in the secondary market and lead to the negative initial return.

Table 7.1: Univariate Analysis: Sort by the PF&REIT Characteristic

	Obs	Offer-to-Close	Offer-to-Open	Open-to-Close
Panel A: Returns by PF&REIT property focus				
Hospitality REITs	13	-1.49%	-0.20%	-1.22%
Industrial REITs	10	-2.85%*	0.75%	-3.20%
Office REITs	10	1.73%	2.43%	-0.68%
Residential REITs	5	0.00%***	1.20%	-1.17%
Retail REITs	9	0.91%	0.63%	0.27%
Self-Storage REITs	5	1.10%	2.86%	-1.62%
Total	52	-0.32%	1.06%	-1.27%**
Panel B: Returns by PF&REIT property holding right				
Freehold	24	-0.34%	1.55%**	-1.75%*
Leasehold	17	-1.08%	-0.86%	-0.25%
Mixed	11	0.88%	2.97%	-1.81%
Total	52	-0.32%	1.06%	-1.27%**
Panel C: Returns by PF&REIT property diversification by area				
Single Property	48	0.00%	0.57%	-0.93%
Diversify Property	11	0.16%	3.43%	-29.04%
Total	59	-0.32%	1.06%	-1.27%**

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Next, we perform the multivariate analysis and find the consistency result with the market adjusted-return where there is the non-negative coefficient for the size effect in the first day trade especially in the secondary market around 0.0173, as shown in Table 7.2. As well as the properties focusing, there is significant overpricing in the Industrial REITs and Retail REITs.

Table 7.2: Multivariate Analysis of the PF&REIT initial return

	AR Offer-to-Close		AR Offer-to-Open		AR Open-to-Close	
Variable	**Estimate**	**P-Value**	**Estimate**	**P-Value**	**Estimate**	**P-Value**
Size	0.0262*	0.0580	0.0075	0.5640	0.0173***	0.0090
Property Type	0.0449	0.3150	0.0487	0.2550	-0.0028	0.8920
Hospitality	-0.0413	0.4330	-0.0273	0.5860	-0.0134	0.5870
Industrial	-0.1190**	0.0380	-0.0881	0.1040	-0.0277	0.2940
Office	-0.0438	0.4340	-0.0457	0.3940	0.0008	0.9760
Residential	-0.0288	0.6450	-0.0513	0.3930	0.0214	0.4680
Retail	-0.1418**	0.0280	-0.1174*	0.0560	-0.0205	0.4900
Freehold	0.0045	0.9090	-0.0198	0.5980	0.0218	0.2420
Leasehold	0.0410	0.3370	0.0128	0.7540	0.0229	0.2550
Constant	-0.5357*	0.0820	-0.1050	0.7170	0.3972***	0.0070
Obs	52		52		52	
F-Test	0.4925		0.7641		0.4059	
R^2	0.1693		0.1191		0.1862	
Adj. R^2	-0.0087		-0.0697		0.0118	

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Under the PF&REIT and Non-PF&REIT return comparing, there is consistent that PF&REIT IPOs are less underpricing about 32.20% for the initial return. The study also shows the significant negative relation between the Offer-to-Close return and REIT dummy variable in Table 7.3 and 7.4.

Table 7.3: Univariate Analysis between PF&REIT and Non-PF&REIT initial return

Variable	PF&REIT (A)	Non-PF&REIT (B)	Difference (A-B)	P-Value
Offer Price (Baht)	10.09	6.61	3.48***	0.0035
Open Price (Baht)	10.16	7.47	2.69**	0.0194
Close Price (Baht)	9.98	7.49	2.50**	0.0350
AR Offer-to-Close	-1.06%	31.14%	-32.20%**	0.0225
AR Offer-to-Open	0.68%	30.73%	-30.05%**	0.0227
AR Open-to-Close	-1.64%	0.12%	-1.77%	0.6590
PROCEED	7,712.96	8,881.92	(1,168.96)	0.6710
SIZE	22.10	22.28	(0.19)	0.5346

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Table 7.4: Multivariate Analysis between PF&REIT and Non-PF&REIT initial return

Variable	AR Offer-to-Close		AR Offer-to-Open		AR Open-to-Close	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
SIZE	0.0400	0.5120	0.0104	0.8550	0.0104	0.5550
REIT	-0.3145**	0.0270	-0.2986**	0.0250	-0.0157	0.6970
CONSTANT	-0.5795	0.6700	0.0750	0.9530	-0.2314	0.5580
Obs	60		60		60	
F-Test	0.0610		0.0752		0.7614	
R^2	0.0935		0.0868		0.0095	
Adj. R^2	0.0617		0.0548		-0.0252	

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

CHAPTER 8
CONCLUSION

This study contributes to the PF&REITs initiation for the 59 PF&REITs which issued in Thailand between June 2003 and November 2016. After eliminated the outliers, which PF&REITs abnormal returns are in range -30% to 30%, there are 52 PF&REITs remaining.

Unlike the several papers, PF&REITs in Thailand are not underpricing for the initial return. Regardless the property focus, Industrial REITs are overpricing initial return rather than underpricing due to their features, lower turnover rate on factory rental. However, the underpricing exist over the freehold right because there are the low risk profile of the property value comparing with leasehold right.

Under the factor analyzing over the PF&REITs initial return, there is significant related over the size effect for the initial return especially in the secondary market. Investors are not interested in the Industrial REITs and Retail REITs because they are significant overpricing.

In order to see the outcome between PF&REITs and Non-PF&REITs underpricing, we use the comparative Non-PF&REITs within -90 days to 90 days of IPO date and 50%-150% of issuance market capital. There is the 30 PF&REITs and 30 Non-PF&REITs. There are significant results over the higher degree of underprice in Non-PF&REITs, like other papers such as Gokkaya et al. (2015). These outcomes occur from the information transparency where PF&REITs have the recurring income. It is able to get the precise dividend yield and more accuracy price comparing with Non-PF&REITs.

Under the study results, show that the PF&REITs underpricing effect over the IPOs transaction do not exist, we recommend that the investors should not enter the subscription. If they are interested in the PF&REITs, they should buy them from the market in the first day trade in order to avoid the negative initial return.

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BIOGRAPHY

Name	Miss Jutamas Temwattanangkul
Date of Birth	October 13, 1989
Educational Attainment	2016: M.S. in Finance, Thammasat University
	2011: Bachelor of Accountancy, Second Class Honors, Chulalongkorn University
Work Position	Assistant Analyst
	KTB Securities (Thailand) Ltd.
Work Experiences	2017 – Present: Assistant Analyst,
	KTB Securities (Thailand) Co., Ltd.
	2012 – 2016: Senior Assistant Auditor,
	EY Office Co., Ltd.