

The impact of Fund fees on Mutual fund flows in Thailand



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This study investigates the sensitivity of mutual fund flows to the different types of mutual fund fees, including management fees, front-end load fees, along with back-end load fees and compares the relative level of sophistication among investors in bank related funds versus non-bank related funds and also tax benefit funds versus non-tax benefit funds. Furthermore, this study examines the relationship between change in fund fees and fund flows. The data are from Thai equity funds during the period from 2006 to 2019. Based on the analysis, we found the evidence that there is difference of sensitivity of fund flows to management fees among investors in bank related and non-bank related funds; on the contrary, there is no different among investors in tax benefit and non-tax benefit funds. The negative relation between management fees and fund flows appears to be for investors who invest in bank related funds, both of tax benefit and non-tax benefit. On the other hand, the positive relation between management fees and fund flows is in investors who invest in non-bank related funds, both of tax benefit and non-tax benefit. This implies that investors in bank-related fund, they are more concerned about ongoing expenses, while advertising activities are more attractive in non-bank related funds. However, there are no relation between both front-end and back-end load fees to fund flows, although the overall picture of the Thai mutual fund, there is negative relation between front-end load fees and fund flows which the result was dominated by the attractiveness of bank-related funds that also have lower front-end load fees compared to non-bank related funds. Moreover, this study found that investors pay attention to changes of front-end fees, although it is considered as one-time costs, while, they pay less attention to changes of management fees and back-end fees which are less salient.

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TABLE OF CONTENTS

	Page
ABSTRACT (THAI)	iii
ABSTRACT (ENGLISH).....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
INTRODUCTION	1
1.1 Background.....	1
1.2 Motivation.....	2
1.3 Research Objective	3
LITERATURE REVIEW	4
2.1 Relevant research.....	4
2.2 Hypothesis Development.....	7
DATA	11
METHODOLOGY	15
4.1 The relationship between fund fees and mutual fund fees.....	15
4.2 The reaction of investors to change in fund fees	18
EMPIRICAL RESULTS.....	20
5.1 The relationship between fund fees and mutual fund fees.....	20
5.2 The reaction of investors to changes in fund fee	28
CONCLUSIONS.....	29
APPENDIX.....	31
REFERENCES	32
VITA	35

CHAPTER 1

INTRODUCTION

1.1 Background

The mutual fund is one of the ways for investors who neither have time, nor desire, nor expertise of investment to save and achieve their financial goals since it allows to pool the money with that of many other investors. The mutual fund is managed by fund manager or professional team. So that, it can buy a wide range of investments which included assets that may not ordinarily be available through direct investment. In term of compensation, fund manager charges fund fees which mainly included 1) Load fees (Front-end, Back-end, and Switch in/out load fees) based on percentage of additional investment and redemption to the mutual funds and 2) Management fees (Management fee, Administration fee, accounting fee, custodian fee, registration fee, selling and advertising expenses) based on percentage of the size of managed asset or Total net assets (TNA) that drives the costs of investing in mutual fund higher than self-managed portfolios. Therefore, from the investors' point of view, investing in mutual funds expected to earn superior return compare to the self-managed portfolios or Buy and hold strategy.

In contrast, there are several researches that indicated the negative relation between mutual fund fees and fund performances such as Elton et al. (1993), Grinblatt and Titman (1989 and 1994), Gruber (1996), Carhart (1997), Harless and Perterson (1998), Barber et al. (2005), Gil-Bazo and Ruiz-Verdu (2008 and 2009). In Thailand, Wattanatorn and Nathaphan (2018) also demonstrated that a higher fee paid to mutual funds does not guarantee a superior performance. Therefore, from the above reasons that there is negative relation between fund fees and fund performance and statistical evidence which there is little probability that high-fee funds can outperform low-fee funds, the most of academic finance advises investors to choose low-fee funds (e.g., index funds) rather than high-fee funds and it could be concluded that investors should avoid the costs from mutual fund expenses and choose to invest in the low-fee mutual funds.

However, in the practical real-world, it might be not that easy for investors to avoid the high-fee funds since there are a lot of information costs in fund comparing, also investors might be attracted by marketing expenses from mutual funds.

Therefore, in this study, I would like to investigate the impact of fund fees on mutual fund flows to understand the behavior and reaction of investors from perception of expenses of investing in mutual funds.

1.2 Motivation

This study focuses on experimental of Thai mutual fund industry with 2 main motivations.

- 1) The main proportion or more than 60% for the numbers of mutual funds in Thailand are managed by bank-related company which easier to access investors information e.g. deposit, loan, transaction, others by information sharing from their banks and also they are able to sell funds selling through their branch and their bank channels (Wattanatorn and Nathaphan (2018)) that this study assumes bank-managed funds are more effective (use lower marketing and advertising expenses to earn the same proportion of fund flows) compared to non-bank-managed funds.
- 2) Around a half of total assets that invested in Thai equity funds are from tax-benefit funds (LTF & RMF) and, over the past years, the growth in Thai equity funds are mainly driven by tax-benefit funds. While, there is evidence that fund fees of tax-benefit funds are significantly higher than fund fees of non-tax-benefit funds under the same investment objective (Na Lamphun and Wongsurawat (2012)). Furthermore, statistical evidence shows that there is seasonal effect on fund flows of tax-benefit funds in Thailand which are high inflows in December and high outflows in January. Therefore, this study assumes that investors who invested in tax-benefit funds are only care about tax-saving purpose and less concerned on the fund fees.

Moreover, there are still no specific research that has studied about the relationship of fund fees on mutual fund flows in Thailand.

1.3 Research Objective

There are 2 main objectives of this study as follows.

- 1) To understand the impact of different type of fund fees on different kind of funds whether on bank-managed perspective or on tax-benefit perspective.
 - a. The difference between impact of load fees and management fees on fund flows.
 - b. The difference between impact of load fees on tax benefit funds and non-tax benefit funds.
 - c. The difference between impact of management fees on tax benefit funds and non-tax benefit funds.
 - d. The difference between impact of load fees on bank related funds and non-bank related funds.
 - e. The difference between impact of management fees on bank related fund and non-bank related funds.
- 2) To understand how Thai investors react to the change in fund fees.

CHAPTER 2

LITERATURE REVIEW

2.1 Relevant research

The mutual fund fees analysis is one of the popular topics in financial literature from both of global academic and Thai academic. While, majority of them are studying in relationship between mutual fund fees and fund performance and minority are studying in relationship between mutual fund fees and fund flows which is none of specific research has studied this topic in Thailand.

Relationship between mutual fund fees and performance from Global academic

Carhart (1997) studies the returns of mutual funds from 1962 to 1993 to explain almost all persistence in equity mutual fund performance in 2 steps. First, Carhart form performance decile portfolios of each year. Then, assume to hold the top decile and monitor for any abnormal performance. So, if the performance is persistent, the top decile should perform well and, also, outperform other deciles in the next period. Hence, the result of first step is that he finds the past winners do outperformance past losers. Second, he uses his four-factor model including factor-mimicking portfolios for the market return, size, book-to-market, and one-year momentum to explain the persistence and find that only momentum factor is the main explanation of the persistence, while the remaining persistence is mainly explained by fund expenses and transaction costs, which are higher in the lower performance deciles.

Dellva & Olson (1998) study 568 equity mutual funds from 1987 to 1992 to examine the relationship between several mutual fund fees include front-end load charges, deferred sales charges, redemption fees, and 12b-1 fees by using bivariate analysis and multivariate analysis with fund sizes, fund ages, turnover activity, cash position, and fund type as controlling variables. Then, they find

that funds with 12b-1 fees, deferred sales charges, and redemption fees increase expenses and only a limited number of these funds can earn whereas funds higher risk adjusted returns, while funds with front-end load have lower expenses. Moreover, they also suggest that the SEC should consider regulation requiring funds with these fees to prominently display their information since 12b-1 fees, deferred sales charges, and redemption fees are receiving much less exposure than front-end loads.

Relationship between mutual fund fees and fund flows from Global academic

Barber, Odean, & Zheng (2005) study the fund flows data from 1970 to 1999 and brokerage account data from the trades of 78,000 households from 1991 to 1996 to explain on change in how investors treat various mutual fund expenses including front-end-load fees, commissions, and operating expenses. Their primary analytical technique was to form expense ratio decile portfolio and calculated the annual growth of new money and fund returns. For the secondary analytical analysis, they estimated a series of cross-sectional regression and control the effect of performance on fund flows by adding market-adjusted returns, squared market-adjusted returns, and return standard deviation to the equation. The result, they found a negative relation between total expenses and fund flows. Moreover, when they separated total expenses variables to operating expenses and front-end-load fees in the regression, they found negative relation between total expenses and fund flows is clearly driven by a negative relation between front-end-load fees and fund flows. In contrast, there is no relation between operating expenses and fund flows and finding that investors are more likely to buy funds with higher marketing expenses but less likely to buy those with higher other operating expenses.

Sirri & Tufano (1998) study the fund flows of 690 U.S. equity mutual funds from 1971 to 1990 to understand the behavior of households who buy funds, the fund complexes, and marketers that sell them by using piecewise regression. Funds are classified according to various performance measures, they show that

for the top-ranked funds, the ranking positively and significantly explains net fund flows. For funds of average performance, the relationship is statistically weak. While, the worst-performing funds do not suffer significant outflows. Moreover, flows are fee-sensitive, but investors response to fees are also asymmetric in that they respond differently to high and low fees.

Jain & Wu (2000) study a sample of 294 mutual funds that are advertised in Barron's or Money magazine from 1994 to 1996 to study 1) whether mutual fund advertising is used to signal superior management skills or not by using average return, Jensen's alpha and the four factor alpha and find that the post-advertisement returns are significantly underperformance the benchmark (S&P 500 index) and 2) whether advertising is used to attract more money to the mutual fund or not by using regression framework to control the investment objective and performance in the year before advertisements and find that the fund flows of advertised fund are significantly larger than fund flows of other funds with the same investment objective.

Relationship between mutual fund fees and performance from Thai academics

Na Lamphun & Wongsurawat (2012) construct a dataset on characteristics of Thai mutual funds from annual reports between 2005 and 2007 to investigate the economic determinants of the variation in these charges by using statistical analysis. Finding that funds that are small, entail higher risk, and offer special income tax benefits charge higher fees and expenses. While, bond funds that produce high returns on investment tend to charge significantly lower fees and expenses when compared to those that produce low returns.

Wattanatorn & Nathaphan (2018) study all listed and de-listed funds in Thailand from 2008 to 2016 and classify fund into bank-related fund and non-bank-related fund to examine the relationship between the mutual fund fees and mutual fund performance by using ANOVA analysis with investment objective as control variable. Then, they find indifferences between the performance on each fund categories although the mutual funds charged fee varied by its

investment objective. Further, they find that although non-bank related funds burden higher fees, there is no different in performance between non-bank related and bank related funds in both of aggregate and investment objective levels. Moreover, their result demonstrates that the information advantage in bank related fund holds in Thai mutual fund industry.

2.2 Hypothesis Development

1. *The relationship between fund fees and fund flows in Aggregate perspective*

This study hypothesizes relationship between fund fees and fund flows under the aggregate perspective as followings:

- 1-a. There is negative relationship between mutual fund front-end load fees and their fund flows.
- 1-b. There is no relationship between mutual fund back-end load fees and their fund flows.
- 1-c. There is positive relationship between mutual fund management fees and their fund flows.

Since we predict that investors have aware of mutual fund expenses. However, it is only in case of front-end load fees since they are larger, outstanding, and occurring when investors decide to purchase in funds. Then, this study hypothesizes negative correlation between front-end load fees and fund flows and no relationship between back-end load fees and fund flows which related to the result of Barber, Odean et al. (2005) that studies the relationship between fund fees and fund flows in U.S. equity mutual funds during 1970 - 1999. While, for management fees, the result of Barber, Odean et al. (2005) that find no relation between management fees and fund flows could be argued in case of Thailand mutual fund market due to the different situations including tax benefits mutual funds and bank-managed funds. As Thailand is classified as the bank-based market and Sirri and Tufano (1998) had found that the bank-managed funds offer lower information searching cost that non-bank-managed to investors, meaning that the bank-managed funds that more efficiency on marketing campaign to promote their funds. While, advertising

expenses are including in management fees and expected to have positive relation to fund flows and might dominate the negative relation of other management fees. Moreover, for investors' point of view and compared to load fees, management fees might be harder to avoid since they are smaller and easily to be embedded in the fund performances. Therefore, this study hypothesizes positive relation between management fees and fund flows in Thailand mutual fund market.

2. The relationship between fund fees and fund flows in Bank-managed perspective

This study hypothesizes relationship between fund fees and fund flows under the Bank-managed perspective as followings:

- 2-a. There is indifferent impact of mutual fund front-end load fees on their fund flows in bank related funds and it in non-bank related funds
- 2-b. The positive impact of mutual fund management fees on their fund flows only occur in bank related funds, while there is no relationship between mutual fund management fees on their fund flows in non-bank related funds.

There is indifference between front-end load fees cost structure between bank-managed funds and non-bank-managed funds and, following the result of Barber et al. (2005), front-end load fees are more salient which easier for investors to compared among funds. While, for management fees, since the most of bank-managed fund names are already well-known in Thailand. Moreover, they can utilize their bank branches and other bank channels in their ecosystem to facilitate investors (Wattanatorn & Nathaphan (2018)). The assumption that bank-managed funds can offer lower information searching cost that non-bank-managed and have more efficiency on promoting costs, this study hypothesizes that positive correlation from advertising fees on fund flows will be able to dominate the negative correlation from other management fees, then the bank-managed funds have positive correlation. While, non-managed funds which have less efficiency on promoting cost have no correlation between management fees and fund flows from mixed result between advertising fees and other management fees.

3. The relationship between fund fees and fund flows in Tax-benefit perspective

This study hypothesizes relationship between fund fees and fund flows under the tax-benefit perspective as followings:

- 3-a. The negative impact of mutual fund front-end load fees on their fund flows in tax benefit funds is weaker than it in non- tax benefit funds.
- 3-b. The positive impact of mutual fund management fees on their fund flows in tax benefit funds is stronger than it in non-tax benefit funds.

Supporting by statistical evidence that found the seasonal effect on investing in fund with tax-benefit which have high inflows in December and high outflows in January that implies their investing mostly for tax-saving purpose. Besides, Na Lamphun & Wongsurawat (2012) who found that fund with tax-benefit in Thailand charge higher fees compared to fund without tax-benefit, this study hypothesizes negative correlation of front-end load fees on fund with tax-benefit flows will be weaker than on fund without tax-benefit with assumption that investors who only care about tax-saving purpose have less concern in fund fees. While, for management fees, this study hypothesizes that fund with tax-benefit will have stronger positive correlation between management fees and fund flows due to the same reason as mentioned before.



4. The reaction of Thailand investors on changes in fund fee

This study hypothesizes relationship between changes fund fee and changes fund flow as followings:

- 4-a. There is no significant impact from both changes of mutual fund load fees and changes of mutual fund management fee to changes of their fund flow.

According to the result of Barber et al. (2005), they found that investors only pay attention to the outstanding fees like front-end fees which they tend to ignore high management fees. In the meantime, the front-end load fees are only occurred at the moment that investors decide and make transactions. Thus, this study predicts that

investors are not concern about change on fees and hypothesizes that there is no significant impact from both of change on load fees and change on management fees to changes of fund flow.



CHAPTER 3

DATA

Consistent with many of prior studies, this study restricts the data on Thai equity mutual funds excluding ticker funds and sector focus funds since they have more spread in fee setting compare to the other mutual fund categories such as money market funds, fixed income funds, allocation funds. In addition, it includes terminated funds and excludes fund ages less than 2 years under the sample period between 2006 to 2019 to reduce the risk of survivorship bias.

With above criteria, the full sample of this study are 264 funds including 191 of bank related funds, 73 of non-bank related funds, 107 of tax benefit funds, and 157 of non-tax benefit funds.

The data of mutual funds are obtained from the Morningstar Direct database on daily and annually basis due to the limitation of total expense ratio which is reported annually on the mutual fund annual report.

Fund Flows

Following Sirri and Tufano (1998) and others, this study defines fund flows as the new money growth rate in total net assets (TNAs) to represent the percentage of fund flows into and out of the mutual funds as

$$FF_{i,t} = \frac{TNA_{i,t} - TNA_{i,t-1}(1 + R_{i,t})}{TNA_{i,t-1}}$$

Where: $FF_{i,t}$ = Fund Flows of a mutual fund i at time t

$TNA_{i,t}$ = Total net asset value of a mutual fund i at the end of time t

$TNA_{i,t-1}$ = Total net asset value of a mutual fund i at the end of time $t-1$

$R_{i,t}$ = Return of mutual fund i at time t

$$R_{i,t} = \frac{NAV_{i,t} - NAV_{i,t-1}}{NAV_{i,t-1}}$$

Where: $NAV_{i,t}$ = Net asset value of a mutual fund i at time t

$NAV_{i,t-1}$ = Net asset value of a mutual fund i at time t-1

Fund fees

To measure the fees from investing in mutual funds, this study separates fund fees into 2 components which are 1) load fees and 2) management fees

For load fees, since the historical information of load fees are lack in Thailand, this study apply calculation from bid-ask price as followings for being proxy by classifying into 2 types 1) Front-end load fee and 2) Back-end load fee

$$FL_{i,t} = average\left(\left(\frac{Offer Price_{i,t/365}}{NAV_{i,t/365}}\right) - 1\right)$$

$$BL_{i,t} = average\left(\left(\frac{NAV_{i,t/365}}{Bid Price_{i,t/365}}\right) - 1\right)$$

Where: $FL_{i,t}$ = front-end load fee of fund i in year t

$BL_{i,t}$ = back-end load fee of fund i in year t

$Offer Price_{i,t/365}$ = daily offer price of fund i in year t

$Bid Price_{i,t/365}$ = daily bid price of fund i in year t

$NAV_{i,t/365}$ = daily net asset value of fund i in year t

Regarding management fee, this study follows the prior literature such as Carhart (1997), Elton et al. (1993), and Wattanatorn & Nathaphan (2018) by applying annual reported expense ratio which is the percentage of fund assets paid for operating expenses and management fees, administrative fees and all other asset-based costs as a proxy of management fees.

Control Variables

Several addition control variables are included in this study. First, Jain and Wu (2000) has found relation between 1-year lagged fund flow and fund flow at time t . Therefore, this study will also add 1-year lagged fund flow to the model to capture this potential effects.

Moreover, there are many literatures such as Sirri & Tufano (2002), Berk & Green (2004) have shown the performance is also important in explaining fund flows. While, to measure the mutual fund performance, this analysis will include both of nominal rate of return and risk-adjusted return. Moreover, since normally mutual fund performances are reported as the total return after all expense, this study will retrieve performance to before-expense return following Gil-Bazo & Ruiz-Verdu (2008 and 2009) by adding back the annual expenses to reported returns as approximation to capture all possible variables.

For the risk-adjusted return, this study use Jensen's alpha (α) as a proxy which measured from CAPM model by using total return of SET TRI Index (obtained from Bloomberg terminal) as the market return and using weighted average of time deposit rate from commercial banks (obtained from Bank of Thailand website) as risk-free rate.

$$R_{it} - R_{ft} = \alpha_{it} + \beta_i(R_{mt} - R_{ft}) + \varepsilon_{it}$$

Where: R_{it} = Return on mutual fund i in period t

R_{ft} = Return on risk-free rate (average time deposit rate) in period t

R_{mt} = Return on a market portfolio (total return of SET index) in period t

While, since the Jensen's alphas are estimated number, before putting of those alphas into the regression models, this study will use t-statistics to test significant of them and, if there is insignificant at the 5 percent confident level on each period, this study will put zero instead the estimated value on that period which complies with Gruber (1996)

Moreover, there are several studies such as Chevalier & Ellison (1997), Sirri & Tufano (1998), Barber et al. (2005), has mentioned that larger funds are expected to capture more fund flows. Additionally, the investment style of each fund also impacts to decision on invest of investors. Therefore, this study will include the fund size or total net asset value (TNA), price to book value (PBV), and dummy variable of dividend policy to regression as control variables.

CHAPTER 4

METHODOLOGY

4.1 The relationship between fund fees and mutual fund fees

To understand the relationship between fund fees and mutual fund flows, this study applies methodology of Barber et al. (2005), Carhart (1997), and Dellva et al. (1998) by studying in both of data descriptive and regression to test the correlation of fund fees on mutual fund flows.

Data Descriptive

This study starts with constructing the equally quintile by sorting average management fee of each fund in the sample period (2006-2019). The group of funds with highest average fund flows will be assigned to the first quintile as well as group of lowest to the last quintile. Then, computing the mean fund flows, front-end load fees, back-end load fees, and other control variables of each quintile by equally weighted find and explain the relationship among them. Finding relationship on different kind of funds, this study will repeat the analysis by separating the observations into groups based on both of bank-managed perspective or on tax-benefit perspective.

Regression model

The results based on data descriptive could be insufficient to conclude about the relationship between of fund fees and fund flows (management fees, front-end load fees, and back-end load fees) since the data descriptive can just be driven by other factors such as the impact of performance of each fund since funds with higher average performance supposed to attract more fund inflows or change on market shares of the different type of funds during the period: small-size funds might have higher management fees and gaining market share whereas large-size funds losing market share. Therefore, to solve that problem, this study will estimate the total possible data between the sample period of 2006 to 2019 in

annually basis with the panel data regression, to find the impact of mutual fund fees on flow sensitivity as

$$\begin{aligned}
 Flow_{i,t} = & \beta_0 + \beta_1 MF_{i,t-1} + \beta_2 FL_{i,t-1} + \beta_3 BL_{i,t-1} + \beta_4 Flow_{i,t-1} + \beta_5 Ret_{i,t-1} \\
 & + \beta_6 BERet_{i,t-1} + \beta_7 \alpha_{i,t-1} + \beta_8 BE\alpha_{i,t-1} \\
 & + \beta_9 \ln(TNA_{i,t-1}) + \beta_{10} PBV_{i,t-1} + \beta_{11} Dividend_i + \varepsilon_{i,t}
 \end{aligned}$$

- Where:
- $Flow_{i,t}$ = Fund Flows of mutual funds i at time t
 - $MF_{i,t-1}$ = Management fees of mutual fund i at period $t-1$
 - $FL_{i,t-1}$ = Front end load fees of mutual fund i at period $t-1$
 - $BL_{i,t-1}$ = Back end load fees of mutual fund i at period $t-1$
 - $Flow_{i,t-1}$ = Fund Flows of mutual funds i at time $t-1$
 - $R_{i,t-1}$ = After-expense return of mutual fund i at period $t-1$ which estimated by adding back the annual expenses to reported return, to control the performance of mutual fund.
 - $BER_{i,t-1}$ = Before-expense return of mutual fund i at period $t-1$ which estimated by adding back the annual expenses to reported return, to control the performance of mutual fund.
 - $\alpha_{i,t-1}$ = After-expense risk-adjusted return (Jensen's Alpha) of mutual fund i at period $t-1$, to control the performance of mutual fund.
 - $BE\alpha_{i,t-1}$ = Before-expense risk-adjusted return (Jensen's Alpha) of mutual fund i at period $t-1$, to control the performance of mutual fund.
 - $TNA_{i,t-1}$ = Total net assets (TNA) of mutual fund i at period $t-1$, to control the effect from fund size.

$PBV_{i,t-1}$ = Price to book value of mutual fund i at period t-1

$Dividend_i$ = Dummy variable for funds that have dividend policy

In addition, this study will also estimate this regression separately on the bank-managed perspective and on tax-benefit perspective to compare the difference between funds with tax-benefit and funds without tax-benefit and also between bank-managed and non-bank-managed funds by adding the dummy variables into the equations as follows;

$$\begin{aligned}
 Flow_{i,t} = & \beta_0 + \beta_1 BANK_i + \beta_2 TAX_i + \beta_3 MF_{i,t-1} + \beta_4 BANK_i(MF_{i,t-1}) \\
 & + \beta_5 TAX_i(MF_{i,t-1}) + \beta_6 FL_{i,t-1} + \beta_7 BANK_i(FL_{i,t-1}) \\
 & + \beta_8 TAX_i(FL_{i,t-1}) + \beta_9 BL_{i,t-1} + \beta_{10} BANK_i(BL_{i,t-1}) \\
 & + \beta_{11} TAX_i(BL_{i,t-1}) + \beta_{12} Flow_{i,t-1} + \beta_{13} Ret_{i,t-1} + \beta_{14} BERet_{i,t-1} \\
 & + \beta_{15} \alpha_{i,t-1} + \beta_{16} BE\alpha_{i,t-1} + \beta_{17} \ln(TNA_{i,t-1}) + \beta_{18} PBV_{i,t-1} \\
 & + \beta_{19} Dividend_i + \varepsilon_{i,t}
 \end{aligned}$$

Where: $BANK_i$ = Dummy variable for funds that managed by bank related company

TAX_i = Dummy variable for funds that have tax benefit features

$BANK_i(MF_{i,t-1})$ = Interaction term of dummy variable for bank-related fund and Management fees of mutual fund i at period t-1

$BANK_i(FL_{i,t-1})$ = Interaction term of dummy variable for bank-related fund and Front-end load fees of mutual fund i at period t-

$BANK_i(BL_{i,t-1})$ = Interaction term of dummy variable for bank-related fund and Back-end fees load of mutual fund i at period t-1

$TAX_i(MF_{i,t-1})$ = Interaction term of dummy variable for tax benefit fund and Management fees of mutual fund i at period t-1

$TAX_i(FL_{i,t-1})$ = Interaction term of dummy variable for tax benefit fund and Front-end load fees of mutual fund i at period t-1

$TAX_i(BL_{i,t-1})$ = Interaction term of dummy variable for tax benefit fund and Back-end load fees of mutual fund i at period t-1

4.2 The reaction of investors to change in fund fees

After knowing the relationship between of fund fees and fund flows, this study will examine how Thai investors react to the change in fund fees by applying the following regression.

$$\begin{aligned}
 (Flow_{i,t} - Flow_{i,t-1}) &= \beta_0 + \beta_1(MF_{i,t-1} - MF_{i,t-2}) + \beta_2(FL_{i,t-1} - FL_{i,t-2}) \\
 &+ \beta_3(BL_{i,t-1} - BL_{i,t-2}) + \beta_4 Ret_{i,t-1} + \beta_5 BERet_{i,t-1} + \beta_6 \alpha_{i,t-1} \\
 &+ \beta_7 BE\alpha_{i,t-1} + \beta_8 \ln(TNA_{i,t-1}) + \beta_9 PBV_{i,t-1} + \beta_{10} Dividend_i + \varepsilon_{i,t}
 \end{aligned}$$

Where: $(Flow_{i,t} - Flow_{i,t-1})$ = Change of fund flows of mutual fund i during period of t and t-1

$(MF_{i,t-1} - MF_{i,t-2})$ = Change of management fee of mutual fund i during period of t-1 and t-2

$(FL_{i,t-1} - FL_{i,t-2})$ = Change of front-end load fee of mutual fund i during period of t-1 and t-2

$(BL_{i,t-1} - BL_{i,t-2})$ = Change of back-end load fee of mutual fund i during period of t-1 and t-2



CHAPTER 5

EMPIRICAL RESULTS

5.1 The relationship between fund fees and mutual fund fees

Data Descriptive

TABLE 1 Descriptive Statistics for Mutual Funds Sorted by Management fee quintiles, 2006-2019

Quintile	Mean MF (%)	Mean FL (%)	Mean BL (%)	Mean Flows (%)	Mean Ret (%)	Mean α (%)	Mean BE Ret (%)	Mean BE α (%)	ln(TNA)	Mean PBV (x)	Dividend
1	2.35	0.35	0.16	15.08	9.47	2.75	11.65	4.28	19.94	2.01	0.38
2	2.04	0.45	0.32	3.99	10.81	2.12	12.81	3.24	19.90	2.00	0.43
3	1.85	0.33	0.23	4.32	10.48	3.01	12.48	3.91	19.95	1.98	0.27
4	1.55	0.26	0.11	-0.07	11.46	3.64	13.00	4.32	19.95	1.93	0.47
5	1.02	0.22	0.18	7.65	11.02	3.04	11.92	3.43	19.95	1.91	0.34
Average	1.75	0.32	0.20	5.71	10.71	2.89	12.42	3.79	19.94	1.96	0.38
S.D.	0.52	0.43	0.41	42.48	25.16	8.21	25.16	8.27	1.75	0.43	0.49

In this analysis, we focus on the relation between different levels of expenses and fund flows and behavior of investors on fund fees on different type of funds. Begin with the basic data descriptive. In Table 1, this study constructs quintiles by level of management fees and calculate mean management fee, mean front-end load fee, mean back-end load fee, mean fund flows, mean after-expense return, mean before-expense return, mean after-expense alpha, mean before-expense alpha, mean natural logarithm of total net assets, mean price-to-book value, and percentage of funds that have dividend payout policy in each group.

The table presents funds in highest management fee group (1st quintile) which are dramatically gain more fund flows compare to others. Under the assumption that the higher management fee funds spend higher marketing expenses, this result will consistent with evidence in Barber et al. (2005) that investors are more likely to buy funds with higher marketing expenses plus this results are tend to consist with our hypothesis which have positive relation between management fees and fund flows in Thailand mutual fund market. While management fees and load fees (front-end and back-end) are not substituted and, on the other hand, they are in the same direction or the high management fee funds also tend to have high load fees, while the low management fee funds tend to have low load fees. Moreover, this table are showing that the higher fee funds cannot generate higher performance in both of after-expense term and before-expense term comply with many of prior studies; Elton et al. (1993), Carhart

(1997), Dellva & Olson (1998). The result also shows that fund sizes have no relationship with management fees. However, as management fees and price-to-book value tend to have positive relation, this means the result from this table may be dominated by the different investment style of each fund, under the assumption that the high price-to-book value funds are growth strategy funds and the low one are value strategy funds.

TABLE 2 Descriptive Statistics for Mutual Funds Sorted by groups of fund, 2006-2019

Types		Mean MF (%)	Mean FL (%)	Mean BL (%)	Mean Flows (%)	Mean Ret (%)	Mean Alpha (%)	Mean BE Ret (%)	Mean BE Alpha (%)	ln(TNA)	PBV (x)	Dividend
Bank	Mean	1.71	0.30	0.26	9.17	10.53	2.62	12.25	3.43	20.40	1.96	0.36
	t-stat	(3.32)	(0.71)	(0.63)	(0.22)	(0.42)	(0.32)	(0.49)	(0.41)	(11.67)	(4.53)	(0.73)
Non-Bank	Mean	1.82	0.37	0.08	-2.50	11.13	3.53	12.82	4.64	18.82	1.97	0.44
	t-stat	(3.53)	(0.86)	(0.19)	(-0.06)	(0.44)	(0.43)	(0.51)	(0.56)	(10.77)	(4.54)	(0.9)
Tax Benefit	Mean	1.83	0.04	0.18	21.05	9.60	2.22	11.44	3.16	20.48	1.98	0.30
	t-stat	(3.53)	(0.08)	(0.45)	(0.5)	(0.38)	(0.27)	(0.45)	(0.38)	(11.72)	(4.56)	(0.62)
Non-Tax Benefit	Mean	1.69	0.52	0.22	-4.23	11.43	3.33	13.08	4.22	19.58	1.96	0.43
	t-stat	(3.28)	(1.21)	(0.53)	(-0.1)	(0.45)	(0.41)	(0.52)	(0.51)	(11.21)	(4.51)	(0.89)

TABLE 3 The analysis of variance result for Bank related vs Non-Bank related and Tax benefit vs Non-Tax benefit funds with Turkey test

	Contrast	Std. Err.	t	P> t	Turkey [95% Conf. Interval]
Management fees					
bank vs non-bank	-0.1326846***	0.02257	-5.88	0.000	-0.17695 -0.08842
tax vs non-tax	0.1507931***	0.02102	7.17	0.000	0.10957 0.19201
Front-end load fees					
bank vs non-bank	0.00366	0.01622	0.23	0.821	-0.02814 0.03546
tax vs non-tax	-0.4845834***	0.01517	-31.95	0.000	-0.51433 -0.45484
Back-end load fees					
bank vs non-bank	0.1874054***	0.01808	10.37	0.000	0.15195 0.22286
tax vs non-tax	-0.0584135***	0.01691	-3.45	0.001	-0.09158 -0.02525
Flows					
bank vs non-bank	9.800421*	5.82124	1.68	0.092	-1.61435 21.21519
tax vs non-tax	27.26573***	5.44197	5.01	0.000	16.59467 37.93679
Return					
bank vs non-bank	-0.31115	1.09762	-0.28	0.777	-2.46347 1.84116
tax vs non-tax	-1.805878*	1.02608	-1.76	0.079	-3.81791 0.20615
Alpha					
bank vs non-bank	-0.761221**	0.35727	-2.13	0.033	-1.46179 -0.06065
tax vs non-tax	-1.007647***	0.33398	-3.02	0.003	-1.66255 -0.35274
Before-expense Return					
bank vs non-bank	-0.29770	1.11505	-0.27	0.790	-2.48422 1.88882
tax vs non-tax	-1.61560	1.03839	-1.56	0.120	-3.65180 0.42060
Before-expense Alpha					
bank vs non-bank	-1.063118***	0.38615	-2.75	0.006	-1.82036 -0.30587
tax vs non-tax	-0.9044521**	0.36004	-2.51	0.012	-1.61051 -0.19840
ln(TNA)					
bank vs non-bank	1.480005***	0.06761	21.89	0.000	1.34743 1.61258
tax vs non-tax	0.7086089***	0.06321	11.21	0.000	0.58466 0.83256
Price-to-Book Ratio					
bank vs non-bank	-0.00639	0.01897	-0.34	0.736	-0.04358 0.03081
tax vs non-tax	0.02291	0.01768	1.30	0.195	-0.01175 0.05757
Dividend Policy					
bank vs non-bank	-0.0791695***	0.02132	-3.71	0.000	-0.12098 -0.03736
tax vs non-tax	-0.1502878***	0.01993	-7.54	0.000	-0.18937 -0.11120

***, **, * Significant at the 1%, 5%, or 10% level, two-tailed test, respectively.

In table 2, it compares funds that manage by bank related company to those manage by non-bank related company and funds with tax benefit to those without tax benefit and,

in table 3, it applies the multiple comparison by Turkey test to differences among groups.

The tables present that bank related funds have lower average of management fees than non-bank related funds, consistent with study of Wattanatorn & Nathaphan (2018) who claim that bank-related fund are more effective in doing marketing and sales promotion which indicated them to be able to offer lower fees. Moreover, even bank related funds have lower average risk-adjusted return (alpha), they tend to be larger and attract more investor than non-bank related funds. While tax benefit funds have higher average management fees but lower front-end fees that non-tax benefit funds which could be because fund management companies know that investors are more sensitive to front load fees and also know that investors who invest in tax-saving funds tend to hold the funds in longer period compare to investors who invest in non-tax saving funds. Therefore, to attract more investors, fund management companies might decide to reduce front-load fees and increase management fees tax-saving funds. For example, in 2019, KTEF, one of non-tax benefit funds, charged 1.34% for management fee, 0.75% for front-end load fee, and 0.00% for back-end load fee, while, KTEF-LTF and KTEF-RMF, tax benefit funds under the same investment policy with KTEF, charged 1.87% for management fee, 0.00% for front-end load fee, and 0.00% for back-end load fee. Moreover, even tax benefit funds have lower average performance, they also tend to be larger and attract more investor than non-tax benefit funds due to the personal tax deduction benefit.

Fund Name	Category	Fee Type	Rate	Reference Rate
KTEF (Non-tax benefit)	Fees (ค่าธรรมเนียม)	Front end Fee	1.00%	0.75%
		Back end Fee	1.00%	0.00%
		Switching Fee	1.00%	-
	Expenses (ค่าใช้จ่าย)	Management Fee	1.87% net	1.34% net
KTEF-LTF (Tax benefit)	Fees (ค่าธรรมเนียม)	Front end Fee	3.00%	0.00%
		Back end Fee	3.00%	0.00%
		Switching Fee	3.00%	-
	Expenses (ค่าใช้จ่าย)	Management Fee	2.14% net	1.87% net
KTEF-RMF (Tax benefit)	Fees (ค่าธรรมเนียม)	Front end Fee	3.21%	0.00%
		Back end Fee	3.21%	0.00%
		Switching Fee	3.21%	-
	Expenses (ค่าใช้จ่าย)	Management Fee	2.14% net	1.87% net
		Total Expense Ratio	2.18%	-

Regression Model

The results based on data descriptive shown that the relationship between fund flows and fees could be driven other factors such as investment style and/or type of each funds. Therefore, we will estimate the panel data model to control that.

TABLE 4 Matrix Correlation between explanatory variables

	Management fees	Front-end load fees	Back-end load fees	After-expense return	Before-expense return	After-expense alpha	Before-expense alpha	ln(TNA)	Price-to-Book Value	Dividend Policy
Management fees	1.0000									
Front-end load fees	0.0824	1.0000								
Back-end load fees	0.0176	0.1584	1.0000							
After-expense return	-0.0092	0.0115	0.0132	1.0000						
Before-expense return	0.0106	0.0055	0.0014	0.9998*	1.0000					
After-expense alpha	-0.0521	-0.0267	-0.0082	0.1340	0.1271	1.0000				
Before-expense alpha	0.0050	-0.0134	-0.0244	-0.0934	-0.0933	0.9690*	1.0000			
ln(TNA)	-0.0242	-0.1236	0.2986	0.0284	0.0277	0.0087	0.0003	1.0000		
Price-to-Book Value	0.1177	0.0600	-0.0339	0.2976	0.2989	0.0771	0.0390	0.0577	1.0000	
Dividend Policy	0.0602	0.0866	0.0010	0.0243	0.0280	0.0155	0.0339	-0.0638	0.0386	1.0000

The correlation matrix in Table 4 shows the relation between explanatory variables, it can be seen that there are strong correlation in between before-expense return and after-expense return and between before-expense alpha and after-expense alpha by the absolute value are higher than 0.7, the level that indicates the presence of multicollinearity. While, the rest are small correlation. Therefore, this study decides to drop before-expense return and before-expense alpha from the regression to avoid the multicollinearity problem.

According to dropping variable as mentioned above, the adjusted regression models are in follows:

Model i: To find the impact of mutual fund fees on flow sensitivity

$$Flow_{i,t} = \beta_0 + \beta_1 MF_{i,t-1} + \beta_2 FL_{i,t-1} + \beta_3 BL_{i,t-1} + \beta_4 Flow_{i,t-1} + \beta_5 BERet_{i,t-1} + \beta_6 BE\alpha_{i,t-1} + \beta_7 \ln(TNA_{i,t-1}) + \beta_8 PBV_{i,t-1} + \beta_9 Dividend_i + \varepsilon_{i,t}$$

Model ii: To find the difference of sensitivity on Bank related vs Non-Bank related and Tax benefit vs Non-tax benefit funds

$$\begin{aligned}
Flow_{i,t} = & \beta_0 + \beta_1 BANK_i + \beta_2 TAX_i + \beta_3 MF_{i,t-1} + \beta_4 BANK_i(MF_{i,t-1}) \\
& + \beta_5 TAX_i(MF_{i,t-1}) + \beta_6 FL_{i,t-1} + \beta_7 BANK_i(FL_{i,t-1}) \\
& + \beta_8 TAX_i(FL_{i,t-1}) + \beta_9 BL_{i,t-1} + \beta_{10} BANK_i(BL_{i,t-1}) \\
& + \beta_{11} TAX_i(BL_{i,t-1}) + \beta_{12} Flow_{i,t-1} + \beta_{13} BERet_{i,t-1} + \beta_{14} BE\alpha_{i,t-1} \\
& + \beta_{15} \ln(TNA_{i,t-1}) + \beta_{16} PBV_{i,t-1} + \beta_{17} Dividend_i + \varepsilon_{i,t}
\end{aligned}$$

The Breusch–Pagan test is used to test for heteroskedasticity in the model to choose the appropriate model for our panel data between Pooled OLS and Random Effect. While, we ignore about using Fixed effect model since, in this study, we intend to study many dummy variables that Fixed effect model will omit them. The result of Breusch–Pagan test shown that they are consistent in rejecting the null hypothesis of homoskedasticity. The statistical evidence implies that heteroskedasticity is present. Therefore, in this study, we will use Random Effect Model to manage with this problem.

TABLE 5 Random effect Regression of Annually Fund Flows on Fund fees, 2006-2019

		For all funds Model i	Separated funds by type Model ii
Bank-related dummy variable (BANK,i)	Coeff. Z-statistics		39.12823*** (3.74)
Tax-benefit dummy variable (TAX,i)	Coeff. Z-statistics		6.931312 (0.73)
Management fees (MF,i,t-1)	Coeff. Z-statistics	2.494678 (1.01)	9.21542* (1.88)
Interaction term of BANK and MF (BANK,i(MF,i,t-1))	Coeff. Z-statistics		-12.94996** (-2.44)
Interaction term of TAX and MF (TAX,i(MF,i,t-1))	Coeff. Z-statistics		3.034804 (0.60)
Front-end load fees (FL,i,t-1)	Coeff. Z-statistics	-10.57258*** (-3.21)	4.492644 (0.62)
Interaction term of BANK and FL (BANK,i(FL,i,t-1))	Coeff. Z-statistics		-8.140558 (-1.04)
Interaction term of TAX and FL (TAX,i(FL,i,t-1))	Coeff. Z-statistics		7.630685 (0.47)
Back-end load fees (BL,i,t-1)	Coeff. Z-statistics	4.6357 (1.43)	2.158382 (0.14)
Interaction term of BANK and BL (BANK,i(BL,i,t-1))	Coeff. Z-statistics		-0.1082829 (-0.01)
Interaction term of TAX and BL (TAX,i(BL,i,t-1))	Coeff. Z-statistics		4.44397 (0.66)
Lagged Fund Flows (Flows,i,t-1)	Coeff. Z-statistics	0.2226213*** (9.80)	0.2078965*** (9.16)
Before-expense return (BERet,i,t-1)	Coeff. Z-statistics	0.1016539*** (3.42)	0.1054665*** (3.57)
Before-expense alpha (BE α ,i,t-1)	Coeff. Z-statistics	0.4873871*** (5.14)	0.5372044*** (5.68)
In(TNA) (In(TNA),i,t-1)	Coeff. Z-statistics	-2.017117*** (-2.73)	-3.443949*** (-4.33)
Price-to-Book Value (PBV,i,t-1)	Coeff. Z-statistics	8.366575*** (4.61)	8.578846*** (4.75)
Dividend Policy (Dividend,i)	Coeff. Z-statistics	-7.458128*** (-2.69)	-5.415898* (-1.92)

***, **, * Significant at the 1%, 5%, or 10% level, two-tailed test, respectively.

The results of this analysis are presented in Table 5. From the model i (for all funds), firstly, consider on the control variables, the coefficient estimates on lagged fund flow, before-expense return, before-expense alpha, and price-to-book value are significantly

positive relation to the fund flows which mean that, in Thailand, the higher on lagged inflow and performance funds tend to attract more investors, consistent with the evidence in Jain & Wu (2000), Sirri & Tufano (2002), Berk & Green (2004) and, from positive relation in price-to-book, it can be interpreted that Thai investors prefer investing in funds that have growth strategy to value strategy. While, the coefficient estimates on the size of funds and dummy of dividend policy are significantly negative relation to the fund flows which mean that small funds experience higher fund flow rates, consistent with Barber et al. (2005) and Thai investors prefer investing in funds which have no dividend policy to the funds that have dividend policy.

There is a significant negative relation between front-end load fees and fund flows. A basis point increase in front-end load fees will decrease fund flows 0.11%, consistent with result reported by Barber et al. (2005) and our hypothesis. While management fees have no relationship to fund flows, consistent with result of Barber et al. (2005) but inconsistent with our hypothesis, and there is no relation between back-end load fees and fund flows. This evidence shows that only front-end fees can impact to investors' decision since they are outstanding and impact at the moments of making decision. Moreover, this evidence indicates that the result in data descriptive which management fees have positive relation to fund flows are dominated other factors, mainly by fund investment style.

From model ii, the relationship of control variables to fund flows are consistent with the model i presented previously. Moreover, the coefficient estimates of dummy variable of bank related funds is significantly positive to fund flows which can be interpreted that the bank related managed funds have inflows more than non-bank related managed funds 39.13% on average. While that of dummy variable of tax benefit funds is positive but not significant to fund flows. The result cannot imply that tax benefit in funds motivate investors to invest in that because investors who buy in tax benefit funds tend to sell them when the holding period meet the requirement to be eligible as the tax-benefit funds have higher management fees compare to non-tax benefit, on average.

By contrast with model i, when we add bank related and tax benefit dummies to the regression, the relation between management fees and fund flows is turned to be

significant but uniquely to different fund types. For non-bank related without tax benefit and non-bank related with tax benefit funds, there is significantly positive relation between management fees and fund flows with coefficient of 9.22 signify that A basis point increase in management fees is associated with 0.09% increase in fund flows. While, for bank related without tax benefit and bank related with tax benefit funds, there is significantly negative relation between management fees and fund flows with coefficient of -3.73 meaning that A basis point decrease in management fees is associated with 0.04% increase in fund flows. The result shown that there are not significantly difference in sensitivity of fund flows on management fees in tax benefit and non-tax benefit funds but there are significantly difference in bank related fund and non-bank related funds. This evidence can be implied that advertising activities or sales promotion are more effective in non-bank related funds, while investors who invest in bank related funds is not concern about or might not be attracted by advertising. They buy bank related funds because of bank companies' reputation plus conveniently buying channel which they can buy funds at commercial bank branches. The result is inconsistent with our hypothesis that expected bank-related funds to have more effective on doing advertising and marketing campaign.

Moreover, it is inconsistent with model i, the relation between front-end load fees and fund flows turn to be no significant which can be explained that apparently investors are hardly concerned about front-end fees but the results for all funds showed negative relation because it was dominated by type of funds between bank related and non-bank related funds . The bank related funds which have lower management fees than non-bank related funds, on average, can attract more investors.

There is not statistically significant of relation between bank-end load fees and fund comply with the result in model i. This evidence shows that investors do not concern about load fees which is not occur when they decide to purchase in funds, consist with our hypothesis.

5.2 The reaction of investors to changes in fund fee

TABLE 6 Random effect Regression of Changes of Fund Flow on Changes of fund fee, 2006-2019

		For all funds
Change of Management fees	Coeff.	0.0045765
$((MF_{i,t-1}) - (MF_{i,t-2}))$	Z-statistics	0.00
Change of Front-end load fees	Coeff.	-44.90042**
$((FL_{i,t-1}) - (FL_{i,t-2}))$	Z-statistics	(-2.16)
Change of Back-end load fees	Coeff.	-17.83105
$((BL_{i,t-1}) - (BL_{i,t-2}))$	Z-statistics	(-1.20)
Before-expense return	Coeff.	0.1579932***
$(BERet_{i,t-1})$	Z-statistics	3.81
Before-expense alpha	Coeff.	-0.2864861**
$(BE\alpha_{i,t-1})$	Z-statistics	(-2.26)
$\ln(TNA)$	Coeff.	-2.472378***
$(\ln(TNA)_{i,t-1})$	Z-statistics	(-4.17)
Price-to-Book Value	Coeff.	6.92658***
$(PBV_{i,t-1})$	Z-statistics	(2.91)
Dividend Policy	Coeff.	-0.1986786
$(Dividend_{i,t-1})$	Z-statistics	(-0.09)

***, **, * Significant at the 1%, 5%, or 10% level, two-tailed test, respectively.

The result of sensitivity of changes of fund flow on changes of fund fee is presented in Table 4, There are no relation to changes of fund flow on change of management fee and bank-end load fee. However, the result shows negative relation between changes of fund flow and changes of front-end load fee. This evidence does not comply with our hypothesis, although front-end load fees are considered as one-time cost, investors pay attention to this type of fees higher than other types since it is more outstanding and easier to compare.

CHAPTER 6

CONCLUSIONS

The primary focus of this study is to find the sensitivity impact from different type of fund fees on different kind of funds either on bank-managed perspective or on tax-benefit perspective. The result shows that, for all funds in Thailand, there are no significant relation between management fees and fund flows, while there are positive relation for non-bank related funds (both with and without tax benefit) and there are negative relation for bank related funds (both with and without tax benefit) which consistent with our hypothesis that investors in different type of funds would react differently to fund fees. However, it is inconsistent with the hypothesis that there is more effective or more attractive to investors for doing advertising and marketing campaign in bank-related funds. This study shows evidence that the main reason for choosing funds for investors who invest in bank-related funds is the reputation and convenience that investors get from bank, whereas they still more concern about high fees fund than investors in non-bank related funds. The result shows that there are more effective for doing marketing campaign in non-bank related than bank related funds.

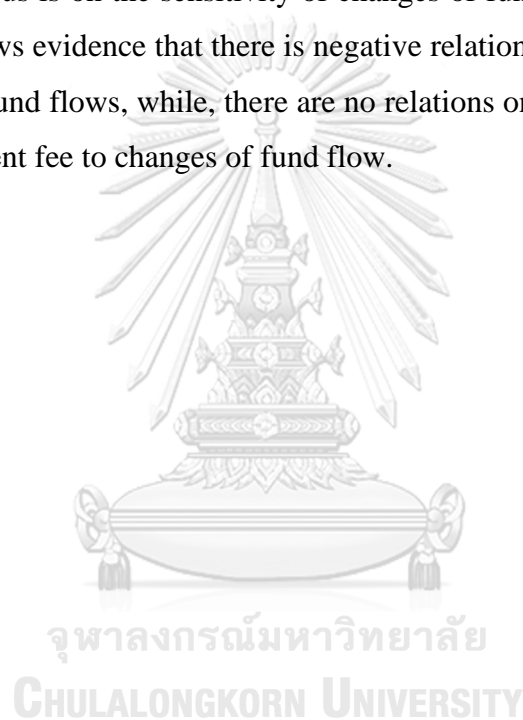
This study finds that, for non-bank related funds, high-management fee funds, which presumably spend much more on marketing campaign, enjoy more inflow than low-management fee funds. However, according to the TSEC (Thailand's Securities and Exchange Commission) still have no rule to mutual fund companies to disclose their marketing expenses which charge to investors, this study suggest the future researches to try to separate the fund flow effects between effectiveness of marketing campaign and other effects. For example, the effect of convenience that investors get from banks.

Moreover, the relation between front-end fees and fund flows for all funds are significant negative which consistent with our hypothesis. However, when we separate funds by type of management company and tax benefit, it found that there are no relation between front-end fees and fund flows implies that the results for all funds was dominated by type of funds, mainly by type of management company, the bank related funds which offer lower management fees, on average, they can attract more investors

by the economies of scale from bank environments. This result is inconsistent with our hypothesis that there are different in reaction to front-end fees on fund flows between investors in tax benefit and non-tax benefit funds.

While, the relation between back-end fees and fund flows, from both models of all funds and separated funds by type of management company and tax benefit, has no significant relationship, consist to our hypothesis .Investors do not concern about load fees that not occur when they decide to purchase in funds.

The secondary focus is on the sensitivity of changes of fund flow on changes in fund fee, the result shows evidence that there is negative relation between changes in front-end load fee and fund flows, while, there are no relations on changes in back-end load fee and management fee to changes of fund flow.



APPENDIX

Appendix i : The asset management company classify by Bank and Non-bank related

Management company	Group
Bangkok Capital Asset Management Co., Ltd.	Bank
BBL Asset Management Co., Ltd.	Bank
Kasikorn Asset Management Co. Ltd	Bank
Krungsri Asset Management Co., Ltd.	Bank
Krungthai Asset Management PLC	Bank
Land and Houses Fund Management Co.,LTD	Bank
Phatra Asset Management Co., Ltd.	Bank
Principal Asset Management Co., Ltd*	Bank
SCB Asset Management Co., Ltd.	Bank
Thanachart Fund Management Co., Ltd.	Bank
TISCO Asset Management Co., Ltd.	Bank
TMB Asset Management Co. Ltd	Bank
UOB Asset Management (Thailand) Co., Ltd	Bank
Aberdeen Standard Asset Management (Thailand) Limited	Non-Bank
Asset Plus Fund Management Co., Ltd.	Non-Bank
Finansa Asset Management Ltd	Non-Bank
ING Funds (Thailand) Co., Ltd**	Non-Bank
Innotech Asset Management Company Limited	Non-Bank
Manulife Asset Management (Thailand)	Non-Bank
MFC Asset Management PLC	Non-Bank
One Asset Management Ltd	Non-Bank
Phillip Asset Management Co., Ltd.	Non-Bank
TALIS ASSET MANAGEMENT	Non-Bank
We Asset Mangement Co., Ltd	Non-Bank

*Principal Asset Management is classified as Bank-related because most of the experimental period CIMBT was major shareholder.

**ING Funds is classified as Non-bank-related because during the experimental period TMB bank does not sell the mutual funds from ING Funds.

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