Fund Flows and Asset Allocation Behavior of Mutual Fund Investors

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This study examines the effect of the market and economic condition (e.g. the volatility of stock market, volatility of bond, CDS, Term spread) on the mutual fund flows and asset allocation behavior of Thais investors. The result indicates that there is a positive correlation between the excess flow of equity fund and the volatility of stock market but negative to the excess flow of fixed income funds. This study concludes that Thais investors tend to invest in equity funds more than fixed income funds when the stock market is highly volatility but allocate their asset away from equity funds when the economic condition is getting poor and the investor tend to invest more in growth stock funds when the market volatility is high. Finally, The result also shows that LTF/RMF investor and non-LTF/RMF investor have a different behavior, the behavior of LTF/RMF investor is influenced by the seasonality effect more than market or economic condition.

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วิทยานิพนธ์ฉบับจัดทำขึ้นเพื่อศึกษาผลกระทบของภาวะเศรษฐกิจและตลาดเงิน-ตลาดทุนต่อ พฤติกรรมการจัดสรรสินทรัพย์ของนักลงทุนกองทุนรวมในประเทศไทย โดยพบว่าภาวะความผันผวนของตลาดมีผลกระทบเชิงบวกต่อกระแสเงินทุนส่วนเกินที่ไหลเข้ากองทุนตราสารทุน และ มีผลกระทบเชิงลบต่อกระแสเงินทุนส่วนเกินของกองทุนตราสารหนี้ นอกจากนี้เมื่อศึกษาพฤติกรรมของนักลงทุนในแต่ละประเภทของกองทุนพบว่า นักลงทุนมีแนวโน้มจะเลือกลงทุนในกองทุนหุ้นเจริญเติบโตเมื่อภาวะตลาดมีความผันผวนสูง และ จะขายกองทุนตราสารทุนเมื่อเศรษฐกิจมีภาวะต่ำลง รวมถึงได้ศึกษาความแตกต่างระหว่างพฤติกรรมของนักลงทุนที่ได้รับประโยชน์จากภาษี พบว่ามีความแตกต่างกับนักลงทุนปกติ ตรงที่นักลงทุนที่ได้รับประโยชน์จากภาษี จะตัดสินใจลงทุนในช่วงเวลาปลายปีมากกว่าภาวะเศรษฐกิจหรือตลาด

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CONTENTS

1. Introduction

1.1 Background and Problem Review

In financial management area, how investor made a decision to buy or redeem the mutual funds and allocate the asset between asset classes or between different type of mutual funds is the interesting question that arise among the asset management companies and academic researcher. In the financial market, especially in the mutual fund industry, there are many asset classes that the investor can decide to invest, e.g. Stock, Bond, Allocation etc. However, each asset class is not truly separate from each other. There are many evidences which show the effect of changing in behavior or characteristic of one asset class to another different asset class. E.g. there was a paper that studies the relationship between Fund flow in mutual fund and stock market. Warther (1995) shows that flow into equity funds is correlated with concurrent and subsequent market returns, while market returns are negatively related to the subsequent flow of the monthly data.

It also includes Economic condition and Market condition to have an effect on the mutual fund's asset allocation, e.g. John Chalmers (2013) founded an evidence that volatility in the U.S. bond market and stock market, default spread and economic crisis event have a negative impact to mutual fund flows but positive impact on redemption of equity funds. Moreover, Xiao Jun (2014) who study the mutual fund

flow on Chinese market founded the flow-performance relationship that, in general investors purchase funds that have high priority performance but when the stock market is highly volatile this relation seems to be weaken.

One of the factors that affects the volatility of the stock market is "The behavior of the investor" which the past studies show that investor behavior such as herding behavior has a direct impact to the volatility of market because herding is said to be present in a market when investors decide to imitate the trading practices of those they consider to be better informed. This volatility that caused from investor behavior can be found often in the developed market, especially in the US which most of the investors are institutional investors. Institutional investor is the investor who tends to be more informed and sophisticated and it is conjectured that an individual investor tends to be less informed and are more speculative in nature. So, it was observed that institution and individual investor did have a different impact on the volatility of a market. This difference in impact lead to an interesting question whether the difference in stock market structure lead to the different result? And how it's going to affect the fund flow of mutual fund? In Thailand more than half of trading activity in the stock market is individual investor. The Thai SEC reports the statistic number of trading volume (June 2015) shows that 57.17% of the trading volume are driven by individual investors. Moreover, Thailand is accounted as one of the volatile market in the world. (Rank as the third volatile market in ASEAN following after Indonesia and Philippines; Business insider news)

The numbers of mutual fund have been growing rapidly, especially in financial market of emerging country such as Thailand due to its benefit to the individual investor such as portfolio diversification, asset allocation. ICI (Investment company institution) reports, that from 2000 to 2013, total assets in mutual fund worldwide has been increasing from $4 trillion in 1993 to almost $29 trillion in September 2013. And the morning star direct report that in the first quarter of 2015 mutual fund industry in Thailand is about ฿3.81515 Trillion compare to the SET's market capitalization is about ฿14.1 Trillion Bath (March 2015). So the mutual fund industry is play an important to Thais capital market.

Thailand has a strange type of mutail funds and no occur in other countries. which is "Trigger funds" and it's very popular for investors especially when the market is in volatiles. it is curiosity and interesting to study trigger funds. Win Phromphaet (CIO, CIMB principal) said "I've talked to a manager of global mutual fund named "Black Rock" and he said that trigger fund and the behavior of Thais investors is very interestingly to study since it only has in Thailand and he also remark that trying to market timing like the trigger funds is very subject to risk". The special characteristic is that when the profit reach the target level the funds will force to close itself and investor will force to sell the unit of holding on the. other hand if the losses occur investor is force to hold the unit of holdings until it matures (limited gain but unlimited lost). and the trigger fund is the closed-end fund (only available to buy at the IPO)

2. Literature review

Literature on fund flow

Sirri and Tufano (1998) have studied the determinant of flow into equity mutual fund and show that Investor crowd to high performing fund, but failing to retreat lower performing fund at the same rate. This complies with the studies by Ippolito (1992) Goetzmann and Peles (1997) Chevalier and Ellison (1997) Del Guercio (2002). All of these studies are explained by "asymmetric flow performance relationship". The factor can be the cause of asymmetric relations[1]hip is included 1) Fee and Transaction cost 2) Marketing effort of mutual fund dealer 3) Participation (Cost to attract new investors) 4) the investor clientele effect.

However, Xiao Jun (2014) argue that it's not clear that the flow - performance relationship is due to market volatility or due to the evolution of other factor and Xiao Jun (2014) show that Flow-Performance relationship varies under different market condition which he use Chinese mutual funds sample and Chinese market. Moreover, the Chinese market is one of the most unique characteristic of other markets, it has been extremely volatile since open-ended fund started trading in 2001. We expect that the flow-performance relationship for a Chinese mutual fund is extremely different from other countries. Although in the same rural area between different investor groups, Del Guercio and Tkac (2002) show that they constituted a substantial

divergence in the pattern of the flow ---performance relationship between two investor groups' retail mutual funds and fiduciary pension funds in the US.

In the competitive market, it is expected that behavior of sophisticated investors will allocate their money to high performing funds and call back their money from low performing funds. Therefore, high performing funds would expect to receive high fund flows in the following point. But in Thailand we have less competitive mutual fund industry and investor is less informed.

Sawicki (2001) has been studied on Australian mutual fund and show that investors respond to past performance, but asymmetric flow-performance relationship is influenced by small and young funds. Moreover, she studies on a wholesale mutual fund, which most of its clients are institutional investors and they do not respond differently to high and low performing funds. [2]More over Warther (1995) – He find a positive contemporaneous relation between stock market returns and unexpected flow, hang (1998), Santini and Aber (1998) report that US. Equity fund flow are positively related to stock market returns and personal income,Cha and Lee (2001) show that equity fund flows influenced by performance of the stock market and John Chalmers (2013) show that the aggregate asset allocation of US. Mutual fund investors depend on economic condition[3]

Literature on the economic variables

E. Fama and K. French (business conditions and expected returns on stocks and bonds; j. of finance; 1989)[4] argued that The term spread have a relation movement

to the economic cycle in the short-term and also measure business cycle. And NBER (National Bureau of Economic Research) in 1989 also argued that by the expectation theory of term structure the term spread (differ of yield spread between long and short term bonds) can be forecast the interest rate change and the interest rate change can track the economic condition.

Lily Qiu (Investor Sentiment Measures; 2006) show that consumer confidence index can be the proxy for investor's sentiment and investor sentiment affected to the fund flows

Literature on the behavior of individual investor

There has many research done on this issues and most of the studies conclude in the same way that individual investors are unsophisticated investor such as e.g. (1) under perform the market (2) sell winning asset while holing losing asset (3) uninformed (4) high trading cost Brad M. Barber show the evidence support this statement. And the behavior of individual investor is unsophisticated especially in emerging market such as Thailand; Gong-Meng Chen (2004) studied the behavior of emerging market's individual investors in Asian countries[5]

Literature on estimating the volatility with garch models

GARCH is the short named for generalized autoregressive conditional heteroskedasticity models have been widely used in financial and econometric modeling and analysis since the 1980s which developed by Robert F. Engle. These models are characterized by their ability to capture volatility clustering, and they are

widely used to account for non-uniform variance in time-series data. Huang Kun (Modeling Volatility of S&P 500 Index Daily Returns: A comparison between model based forecasts and implied volatility; 2011) have compared the GARCH and the other model to estimate the S&P 500 volatility and show that GARCH (1,1) perform well in capturing the observed volatility. [6-8]

Literature on the named of mutual funds affect to its fund flows

Michael j. Cooper (2005) show that after the funds change theirs name to take advantage of investment style it can attractive abnormal flows mean the investor percept the different between type of funds and have a different behavior which we go further to study this issue in Thailand.

Literature on the volatility and Asset allocation

Bob Collie (2011) show that the asset allocation is based on the risk and reward. The expected return is denoted as the reward and the volatility is denoted as the risk in most of modern finance theory

Literature on the investor's sentiment affect to investment in market

Malcolm Baker (2007) Show that investor's sentiment affects to the financial asset pricing especially for the asset which difficult to value.

Literature on the RSI – Index

Because the stock price is determining by forecasting of its future prices and the technical analysis is a method to forecast assume that there is a conditional

relationship between the future price and its price in the past. In other words, changes in the past price can forecast its future price.

The RSI is widely used in technical analysis since it easy to use and interpretation. It was proposed by Welles Wilder (1978) and presented in the book "New Concepts in Technical Trading Systems". It reflecting the relative strength of the price of a security in relation to itself. And can be applied to a stock market index to determine bullish or bearish trends in the market.

Thus, the RSI index is important to proxy for market sentiment[9] especially for investors who attempt to profit from the short-term price changes which often caused by investors' attitudes toward a security.
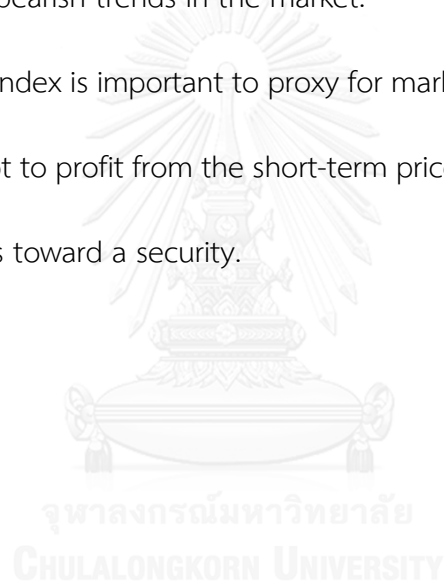
3. Research question and Hypothesis development

According to the asset allocation and investment decision theories, the allocation of assets across different asset classes will depend on how risk averse an investor is, with less risk averse investors generally allocating a greater proportion of their portfolios to riskier assets. ICI (Investment company institute) reports that most mutual fund investors are still avoiding high-risk investments (high degree of risk aversion) in their mutual fund portfolios. Moreover, ICI released the figures in its annual mutual fund study, which it shows that investor which high risk aversion is the cause of strong fund flow to bond fund and weak fund flow to equity fund.

Another theory that studies the behavior of investor toward the risky event is "prospect theory" The theory states that people make decisions based on the potential value of losses and gains rather than the final outcome. Marc Oliver Rieger (2011) applies the prospect theory and examine the degree of risk preference around the world and found that Thai investor have a higher loss aversion when compared with other countries. (Thailand's degree of loss aversion is 0.722 while US is 0.69). This statistic is also an another reason, why Thailand is the interesting area to study further. All of these results suggested that when investor faces with high volatility, they might decide to allocate their money to less risky asset.

From the Keynesian macroeconomic theory, John Hicks (1937) have developed the IS-LM model which explains the relationship between interest rate and the output

of the economy, such as the investment-saving and liquidity preference-money supply, from the IS-LM model, interest rates are determinant of the investment decision and also to the economic condition of financial markets. The term spread (the difference between the yields on long-term and short-term government bond), it reflects an expectation to future short-term interest rates. Fama & French (1989) show that Term spread is wide when economic condition is good and narrow when economic condition is expected to be bad which later become a standard practice among economists when forecasting output growth, recessions and predicting economic condition. Another factor that can represent the economic condition is the default spread (the difference between the yields on corporate bonds and Government bond) reflects the additional yield an investor can earn from a security with more credit risk. Then the default spread is wide when the investor afraid of default risk which imply to down-economic conditions, is narrow down when the investor have a confidence to economic-condition. Lastly, from of these statements suggested that investor allocate their assets to less risky fund, when investors facing with the bad economic condition. This study develops the research question and hypothesis as follow

Research question 1: When making asset allocation decisions do mutual fund investors react to changing in market and economic conditions?

Hypothesis 1.1: An increasing of market volatility make the investor allocate asset away from equity funds relative to fixed income funds.

Hypothesis 1.2: An increasing of the term spread (term spread widens) make the investor allocate asset away from equity funds relative to fixed income funds.

Investment style can be broadly classified into two board groups: value and growth. Value investing is looking for the asset which price is below its true value while growth investment is considered less to the price and looking for the asset which successful and can be making a return while another investor rewarding with high valuation (mean by the higher price).

One of important theory known as "EMH – efficient market hypothesis" argued that all of the available information is already reflected by the market in the asset price. If EMH is held for true, there is irrational to looking for the undervalued asset because it's already fully reflect into the price by investors. This is contradicted to the value investment strategy since they are trying to look for the assets which they discovered it's undervalued. The risk is that an asset is undervalued by a good reason which market reflect to that face so its price should stay low for a long time.[10]

While growth investor believes in asset that already successful in generating income, and being reflected in an asset price that is comparable to high earnings

(higher P/E ratio). The high P/E ratio indicates a high growth opportunity, but also higher risk

All of these different type of investment raises up the question to us. Do investor response ideally to the different investment styles of mutual funds. Thus, we conduct a research question and hypothesis as follow

Research question 2: whether the strength of the relation between asset allocation behavior to market and economic conditions varies across different type of mutual fund style.

Hypothesis 2.1: An increasing of market volatility makes fund flows to growth stock funds increasing while decreasing of fund flows to value stock funds.

Hypothesis 2.2: An increasing of market volatility makes fund flows to mid stock funds decreasing while increasing of fund flows to larh stock funds.

Hypothesis 2.3: An increasing of term spread (term spread widen) makes fund flows to all type of funds decreasing.

Hypothesis 2.4: An increasing of RSI index makes fund flows to all type of funds increasing.

After we plot the fund flows of mutual funds by monthly in fig 2.1 it shown that some month especially in the nearly end of the years has a sharp increasing of

fund flows. This is the interesting point and we suspect it because of tax-benefit funds. Therefore, we have another research question in the below.

Retirement mutual funds (RMF) and Long-term equity funds (LTF) are both tax-benefit funds that allow investors to take a benefit of tax shield for up to 15% of their income but investor has a commitment to hold the asset in a long-term period. This kind of mutual fund has become more favorable and capture large fund inflows when compared to ordinary mutual funds. This special agreement of RMF&LTF funds makes the clientele effect to be different from the ordinary funds. All the past literatures in the Mutual fund flow area did not take these fund types into account. Despite the fact that the ordinary and tax-benefit funds should study separately in order to celebrate the differences in the behavior of investor. Hence, this study develops another hypothesis that compare fund flow between ordinary fund and Tax benefit scheme mutual funds. And from the graph of monthly fund flows (raw data) we see some pattern of flows which typically sharply increase in the nearly end of the yr. This lead to questions that do fund flows of tax-benefit funds have a behavior of seasonality pattern.[11]

Research question 3: do the fund flows of tax-benefit investor response to the market and economic condition?

Hypothesis 3: The tax-benefit investors (LTF/RMF) is less responsive to market or economic condition. Their typically response to the seasonality of fund flows.

Fig. 2.1 Raw fund flow data of equity funds from January 2003 to June 2015

After we have studied the fund flows of equity funds and asset allocation behavior. There has a one interesting type of funds which is the trigger funds by the way we can't observe the fund flows of it. Thus, we using the number of opening per month instead of fund flows to conduct our research question.

Thailand is the only market in the world that has an uncommon type of funds which is "Trigger fund". It is the fund with profit triggers, when the NAV of the fund is reaching a fixed point or the fund life is reaching the prescribed time, it will automatically redeem the share of funds. The unique behavior of Thais investor which attractive to purchase this fund is very interesting to study. Because the special characteristic of Trigger funds, it has a limited upside but unlimited downside. It can be explained in economic term by "disposition effect". Investors are less willing to recognize losses, but are more willing to recognize gains. This is an irrational economic behavior. More comprehensive explanations also use other aspects of prospect theory, such as reflection effect or involve cognitive dissonance.

This irrational behavior of Thais investor is lead to the question, what is the main factor that cause the investors to purchase Trigger funds, such as economic condition or market condition.

Trigger funds are based on the prospect of investor to catch up the high return by the attempt to timing the market. Thus, the trigger funds are raised up in order to attract the investor. Thomas Chiang (2001), he studied 7 stock markets in Asian and showed that higher level of stock market's volatility is associated with higher average

return. Hence, this study is trying to study the trigger fund, which no study has done before

Research question 4: Do market and economic condition affected to the opening of trigger funds.

Hypothesis 4: The trigger funds is typically open when the volatility of the stock market is low and the market sentiment is in the uptrend (measuring by RSI).

4. Source of Data and Variable definition

Source of Data

Mutual funds data, Thailand Mutual fund data can be received from "Morning star Direct Database" which offer much info, e.g. Net asset value (NAV) in daily, weekly and monthly, type of funds, past return, etc. From all available information between 1975 to 2014, There are 1405 Funds that can be classed as "Open-ended Fund" and "Close-ended Fund" or by asset class as "Equity" (533 Funds) "Fixed Income" (687 Funds) and "Balanced Fund" (117 stores).

Stock market data, The High-low daily and end of the day close price of the stock market which require to measure the volatility is obtained from "Reuter's Data Stream".

Consumer confidence Index (CCI) are retrieved from The Center of Economic and Business Forecasting (CEBF), University of the Thai Chamber of Commerce is downloaded from "Bloomberg Terminal"

Bond yields on the 10-year Thais Government Bond and the 3-month Thais Government Bill. Is download from "Reuter's Data Stream" in order to construct the term spread

CDS Price which is the "THAI CDS USD SR 5Y D14" is downloaded from Bloomberg Terminal

The definitions of variable

Variable	Definition
EF	Excess flow
Flow	% flow of funds
Volatility	GARCH (1,1) estimated volatility of SET Index
BV	Bond's volatility
CDS	CDS price
RSI	Relative Strength Index of SET
OPEN	number of opening of Trigger funds per month
NAF	Cumulative numbers of trigger funds in particular month

5. Methodology

Identify the Excess flow ($EF_{j,t}$)

To examine which asset classes of mutual fund investor allocate their money in response to the economic and market condition. It can be done by measuring the excess flows of each asset class. For each funds I have to identify net flow (NF) by using monthly change in asset (A) which resulting from net flow and adjust by the monthly return

$$NF_{i,t} = A_{i,t} - A_{i,t-1} - A_{i,t-1}R_{i,t} \text{ (1)}$$

Where subscript i is denoted as the mutual fund i, $A_{i,t}$ is the total asset of fund i at time t and $R_{i,t}$ is the return of fund i at time t. Next I sum the net flow (NF) of each fund by asset classes (e.g. equity, fixed income, allocation).

Then, to identify the excess flow I apply the methods proposed by Frazzini and Lamot (2008) which use net-asset-weighted flow (AWF) as a flow benchmark. AWF for asset class j in month t is the new flow that would go to class j if the investor allocated asset in proportion to the relative net assets of class j in month t -1. To demonstrate, suppose equity funds have a proportion of 60% of total assets at the end of month t-1. Then this method expects 60% of the total flow in month t should be allocated to equity funds.

$$AWF_{j,t} = \frac{A_{j,t-1}}{\sum_{j=1}^{3} A_{j,t-1}} \sum_{j=1}^{j} NF_{j,t} \quad (2)$$

Where subscript j is denoted as the asset classes and it is the month and asset-weighted flow (AWF) for asset class j in month t. Then, the excess flow for category j $EF_{j,t}$ is constructed as an actual flow for category j less asset-weighted flow

$$EF_{j,t} = \frac{NF_{j,t} - AWF_{j,t}}{A_{j,t-1}} \quad (3)$$

then we define percent flow as follow[12]

$$\%Flow_{i,t} = (A_{i,t} - A_{i,t-1} - A_{i,t-1}R_{i,t})/(A_{i,t-1}) \quad (4)$$

and please remark that percent flow from equation 4 and the excess flow from equation 3 is different since excess flow is focused on how wealth of mutual fund is allocate across the fund classes but the percent flow is focused on how individual funds have a higher or lower fund flows compare to previous month.

Identify Stochastic Volatility of the stock market (GARCH 1-1)

To study the effect of volatility of the stock market to the decision of mutual fund investor. This paper defines the stock market volatility by a stochastic process (assuming that the volatility of the stock market return is a stochastic process rather than a constant). The Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model is the popular model for estimating stochastic volatility. It assumes that the randomness of the variance process varies with the variance, as opposed to the square root of the variance as in the Heston model. The standard GARCH (1, 1) has

employed in this paper. I plot the GARCH volatility by using monthly historical index data of SET Index from the beginning year to Jun 2015.[13]

$$\sigma_t^2 = k + G\sigma_{t-1}^2 + A\varepsilon_{t-1}^2$$

GARCH (1,1) volatility
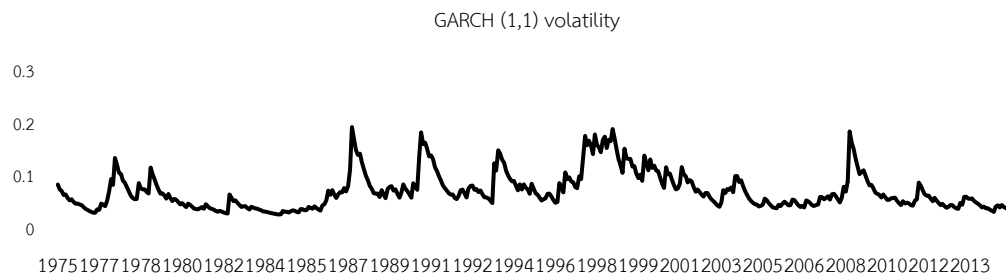
Fig. 5.1 The GARCH Volatility of SET Index returns during 1975 – 2015 by GARCH Model

Identify Relative Strength Index (RSI)

In this study I use the RSI-14-day index Developed J. Welles Wilder (1978) which is broadly used to analysis the state of the stock market. It measures the strength or weakness of a stock market based on the closing prices of recent trading days. This study calculates the RSI based on 14-days, which is the default suggested by Wilder in his book. Losses are expressed as positive values, not negative values

The RSI index added into to the model as the proxy represent to market sentiment of the investors since many studies shows that not only market and economic condition affected to the fund flows its also affected by the market sentiment.

$$RSI = 100 - \frac{1}{1 + RS}$$

$$RS = Average\ gain\ of\ 14\ days\ /\ Average\ loss\ of\ 14\ days$$

Identify the others economic variables

-Term spread

In this study I use Term spread as a proxy variable to economic condition which followed to Fama and French (1989) they show that Term spread can use to track economic conditions. Term spread is wide near business cycle troughs, when conditions are expected to improve, and narrow near peaks, when conditions are expected to worsen. The Term spread is identified by the difference between yields on the 10 year Thais-Govt Bond and the 3 months Thais-Govt Bill. Which downloaded from the Thompson Reuter's data stream

5.1 Asset allocation between asset classes

The first objective is to investigate how the market and economic condition affect to the behavior of asset allocation between asset classes e.g. equity, fixed income and mix funds. To measure that effect this study remodel from the methodology of John Chalmers (2013) by constructing the regression model as follows

Adding monthly dummy variables into the model. Because we observe the sharply increase in fund flows from the graph in fig 2.1 and in Thailand it has a tax-benefit funds (LTF/RMF) which could lead to the seasonal pattern of fund flows. And this study employs the Newey-West t-statistics with lag of three to deal with the concerning of autocorrelation and heteroscedasticity in time-series regression.

$$EF_{j,t} = \alpha + \beta_1 \text{Volatility} (t-1) + \beta_2 \text{TERM} (t-1) + \beta_3 BV(t-1) + \beta_4 CDS(t-1)$$
$$+ \beta_6 RSI (t-1) + \beta(\text{February} + \cdots + \text{December})$$

Where Volatility is the garch (1,1) volatility estimator of the SET; TERM is the term spread of Government bond; BV is the volatility of bond market; CDS is the price of the cds contract; RSI is the RSI index of SET and the summary of the data in this model is concluded is table 5.1

Table 5.1 Report summary statistic of data in monthly from Jun 2002 to April 2015; Equity, Fixed income and Mixed is the excess with calculating from the equation (3); GARCH is the GARCH (1,1) estimated volatility of SET; BV is the volatility of bond market; CDS is the CDS price; RSI is calculated from equation (5)

Excess flow	Mean	SD	Min value	Max value
Equity	0.0245 %	1.38 %	-3.80 %	5.12 %
Fixed Income	-0.1081 %	5.05 %	-16.82 %	22.57 %
Mixed	0.2624 %	3.52 %	-10.61 %	17.19 %
GARCH	6.5641 %	2.31 %	3.79 %	19.08 %
BV	5.4150 %	4.83 %	0.3571 %	37.62 %
TERM	1.4923 %	93.12 %	0.0704 %	3.64 %
CDS	0.9676 %	55.54 %	0.2693 %	2.9833 %
RSI	0.5433 %	12.71 %	0.2782%	0.8722%

*Number of obeservation : 155 Samples from Jun 2002 to April 2015

And the regression result of the excess flow between fund classes on the market condition, economic condition and other control variables is shown in table 5.2

Table 5.2 Excess flow of asset classes and market-economic conditions.

Excess Flow	Equity		Fixed Income		Mix	
Volatility	0.200**	0.183*	-0.462	-0.417	0.209	0.195
	(2.010)	(1.880)	(-1.310)	(-1.260)	(1.130)	(1.040)
BV	0.005	0.011	-0.106	-0.133	0.067	0.066
	(0.200)	(0.430)	(-1.330)	(-1.540)	(1.570)	(1.400)
TERM	-0.005**	-0.004*	0.019**	0.018**	-0.008*	-0.007*
	(-2.010)	(-1.890)	(2.420)	(2.310)	(-1.970)	(-1.950)
CDS	-0.010**	-0.010**	0.030**	0.029**	-0.011	-0.011
	(-2.570)	(-2.410)	(2.510)	(2.380)	(-1.460)	(-1.530)
RSI	-0.012	-0.011	0.036	0.036	0.017	0.017
	(-1.370)	(-1.270)	(1.060)	(1.080)	(0.690)	(0.710)
February		0.005		0.005		-0.010
		(1.360)		(0.340)		(-1.340)
March		0.006		-0.006		-0.005
		(0.950)		(-0.380)		(-0.270)
April		0.000		0.013		-0.006
		(-0.010)		(0.910)		(-0.460)
May		0.003		-0.004		-0.005
		(0.510)		(-0.240)		(-0.400)
June		0.004		-0.016		-0.012
		(0.900)		(-0.930)		(-0.920)
July		-0.001		0.013		-0.007
		(-0.300)		(0.800)		(-0.720)
August		0.005		-0.002		-0.005
		(1.360)		(-0.200)		(-0.440)
September		0.005		-0.013		-0.009
		(1.460)		(-0.790)		(-0.890)
October		0.001		-0.004		0.010
		(0.390)		(-0.300)		(0.870)
November		0.002		0.019		0.003
		(0.420)		(0.910)		(0.260)
December		0.008*		-0.024		0.011
		(1.850)		(-1.360)		(1.400)

*This table report the coefficient from model 1 using newey-west's t-statistic times series regression with lag (3) for concerning to the auto correlation and heteroskedasticity ; GARCH(t-1) is the volatility of SET ; BV is the volatility of fixed income market ; CDS is the cds price ; RSI (t-1) is the RSI-14 days index of SET ; Feb to Dec is the month dummy variables.

From table 5.2 the coefficient of equity fund's excess flow is positively and significantly to stock market's volatility (with Newey-west's t-statistic of 2.01). While the coefficient of fixed income fund's excess flow is negative and insignificant, but tend to signify (Newey-west's t-statistic of -1.31). The Term spread is the proxy to track economic condition have a negative coefficient to equity fund's excess flow but positive coefficient to fix income fund 's excess flow. And CDS (THAI CDS USD SR 5Y D14) is the credit derivatives contract which represents the credit quality of Thailand. CDS price has a negative coefficient to equity fund but positive coefficient to fixed income fund.

The volatility (garch1-1), it has a positive coefficient for equity funds show that when the stock market is highly volatile it has the positive excess flow to the equity funds. So investors do not allocate their funds to less risky asset classes during the highly volatile market. However, for the Fixed income funds it has a negative relation although it's not significant but in the US. John Chalmers (2013)[14] argued that the stock market volatility has a negative relation to aggregate flows of equity class funds and positive relation to fixed income funds which contrast to our study and these demonstrate the different behavior of emerging market to developed market.[15] Moreover It also contrasts to the investment strategies that investor should reduce exposure to risky assets when the volatility of asset is high. The irrational behavior it may be because of the different between investors in emerging market and developed market[16]. Gongmeng Chen's study (2007) support that investor in emerging markets

(especially in Asian countries) seem to have a bad trading behavior (unsophisticated behavior) compared to developed market, including the different proportions of investors in the market as already mentioned in the previous session. Thailand has a very high proportion of individual investors (accounted for about 60 percent of trading volume) and this large amount of because individual investors lead to unsophisticated behavior and more than that Thailand's stock market is considered as one of the most volatile market.

The Term spread which is the proxy variable to the track economic & business condition including the recession (David C. Wheelock; K. French 1989), it will widen when economies are troughs and expected the economy to improve. It will narrow down when the economies are near the peaks and expected to worsen. The result in the table 5.2 show that the excess flow of equity and mixed classes are negative but positively for fixed income. Which means that the excess fund flows of equity fund are high when term spread is narrower down which mean the economy are going to the peaks. And for the fixed income it is opposite direction of the equity fund.
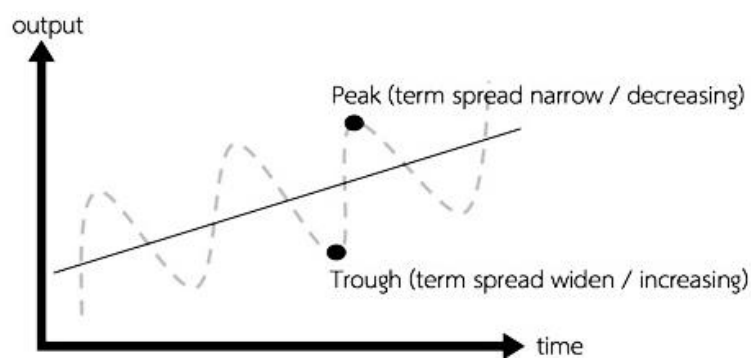
Fig 5.2 explanations of term spread and economic condition

Again, it contrasts with John Chalmers (2013) he studied in the US. And argue that the excess flow to equity funds is positive when the term spread is widening (positive relation to Term spread) and the excess flow to fix income funds is negative (negative relation to Term spread). It's not surprising because the individual investors generally have an over confidence behavior especially in Thailand. They tend to buy the stock fund when the economy is in the good condition and it's going up to reach the highest point before its slowdown on the growth in the future. Normally the economic cycle is go through expansion then the peak followed by contraction.

The CDS Price, it negatively to equity and mixed fund because when the investors' default aversion is high will lead to lower fund flow to equity and mixed fund. But opposite to fixed income fund it has a positive excess flow when the investors' default aversion is high. Thus, Thais investor allocates their funds from equity to fixed income because fixed income has a less risk compare to equity funds. Moreover, CDS can be explain the investor's aspect to macro-economic and market's technical factor because macroeconomic conditions play a role in pricing CDS (Tong Sak Kim 2015). And our result is consistent with the study by John Chalmer. He shows that the default spread has a negative coefficient to the flow to equity fund and positive coefficient to fixed income fund but in our study we used CDS price as the proxy for default spread which the results happened in the same way.

Another interesting point is that the study by Mark J. Kamstra (2015; J. of Quan. Fin.) show the evidence that fund flow is influent by the seasonality and this finding

occur in many countries. So we have to study the seasonality buying behavior by adding the month dummy variables into the in the regression model on the next column of table 5.2. Overall the results have remained the same and founded the positive flow into the equity and mixed funds in December but fixed income fund has an outflow of funds. I wonder and suspect that it might attribute to a tax-benefit funds (RMF and LTF) encouraged to middle-income-classes investors by the ministry of finance. In Thailand this kind of mutual funds has become favorable and capture large fund inflows when compared to ordinary mutual funds. In order to get the tax deduction benefit investors must buy a large amount of mutual fund within particular of tax-fiscal year this may lead to higher fund flows in December or maybe because of "seasonal flow" which a previous study in US. founded that investors make investment activity more activities around the end of the year. So in the next part this study has focused on the influence of LTF/RMF funds to abnormal December flows.

In conclusion, the higher volatility of the stock market (garch1-1), the narrower of Term spread and the decreasing of CDS price resulted in investors allocating their money into equity funds. For the volatility this may seem contradictory to psychology of investment because in common sense the volatility is likely to influence sophisticated investors fear to hold equity funds this may because of the difference in character and behavior of investors and different in proportion of investor in the market. And our result shows that Investors invest in equity funds when the economy is going to reach the peak which inconsistent with the study in developed market.

Finally, after adding month variables to the equation. It is showing a positive excess flow in the "December" which we suspect that because of the tax - benefit fund and we will find the answer of the abnormal flow in the next session.

5.2 Fund flows between different fund investment categories

Overall, the result from the table 5.2 shown how economic and market conditions affect to the asset allocation behavior between asset classes. However, it cannot explicit the behavior of fund flows on the different style of mutual funds (different style refers to "The style of the funds to the manage the money of clients). Hence, this study has developed another panel data analysis on individual of funds (on the previous model this it is done by aggregate flow) with funds fixed effects regression

5.2.1 Categorize the mutual funds

Mutual funds can be broadly categorized into two categories Equity and Fixed income fund However, this study separating mutual funds into different sub – categories based on its investment style by using these criteria First, stock size with can be separate funds into three different subgroups e.g. large, medium, small fund. Second, Investment Style that referred to how value-growth orientation of the stock holdings into three different subgroups namely growth, blend and value fund. The definition of each criterion is on the table 5.3 with illustration in fig 5.3

In order to investigate the allocation behavior of investors on different styles of funds. This study divided the equity fund into sub-category based on investment style as shown in table 5.3 and fig 5.3, which reflect to its risk levels.

Table 5.3 Summary criteria of investment category

Criteria	Definition
Large	These funds seek capital appreciation by investing in Large-cap stocks that are accounted for the top 70% of the capitalization
Medium	These funds seek capital appreciation by investing in Medium-cap stocks which represent the next 20% of the capitalization
Small	These funds seek capital appreciation by investing in small-cap stocks.
Growth	The Growth style is defined based on high price/book and price/cash-flow ratios, relative to the MSCI EAFE Index.
Value	The Value style is defined based on low price/book and price/cash-flow ratios, relative to the MSCI EAFE Index.
Blend	The blend style is assigned to funds where neither growth nor value characteristics predominate
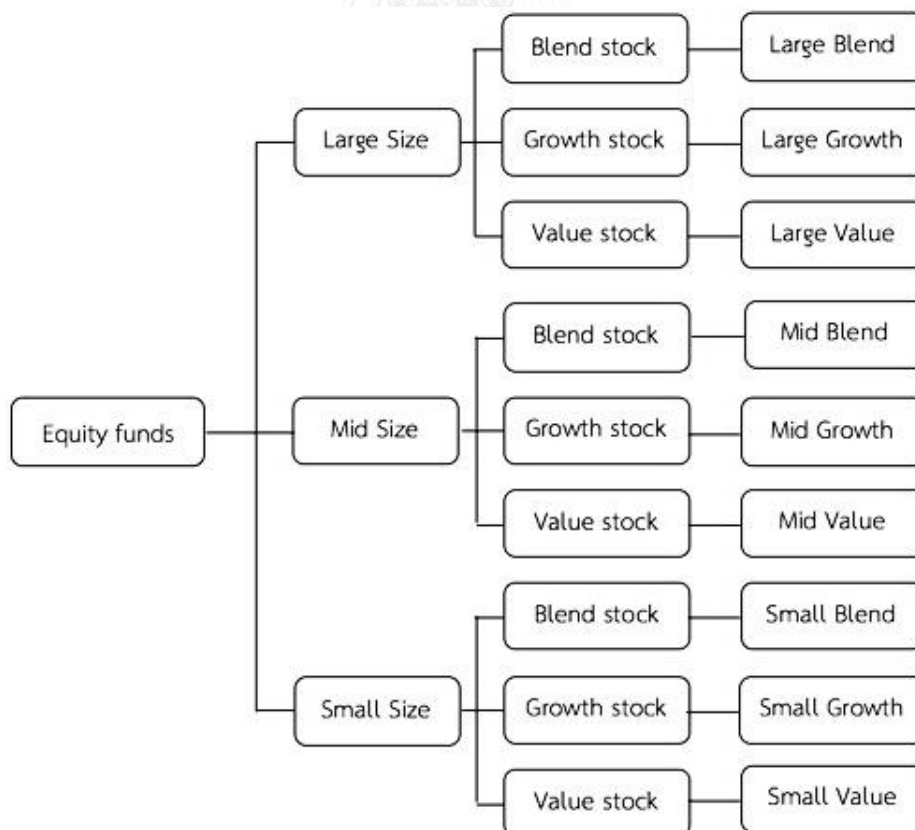
Fig 5.3 category of mutual fund

$$Flow_{i,t} = \alpha + \beta_1 GARCH + \beta_2 TERM + \beta_3 BV + \beta_4 44CDS + \beta_6 \ln(AGE) + \beta_7 \ln(TA)$$
$$+ \beta_7 RANK + \beta_8 RSI + \beta \ (February + \cdots + December)$$

This study used the fixed effect in order to absorb the difference between type of funds which developed this method from Xia Jun (2014). The summary of data is shown below in the table 5.4, 5.5 and4 the regression result is shown in the table 5.6

Table 5.4 summary of funds data using in the model from Jan 2003 to Dec 2014

% FLOW	Obs.	funds	Mean	Std. Dev.	Min	Max
All	63974	452	1.5516%	0.3430	-98.03%	4003.31%
Large-blend	14345	176	0.9946%	0.2121	-98.03%	14.61%
Large-growth	19517	190	0.2875%	0.0987	-93.61%	449.85%
Large-value	2149	37	0.4887%	0.1279	-79.60%	299.47%
Mid-blend	1471	23	0.9072%	0.1435	-85.19%	233.58%
Mid-growth	694	10	1.6498%	0.1007	-79.23%	90.02%
Mid-value	562	11	1.3830%	0.1121	-35.55%	74.08%
Small	113	5	5.0885%	0.4997	-39.39%	529.22%

Table 5.5 summary of variables using in the model from Jan 2003 to Dec 2014

Variable	Mean	Std. Dev.	Min	Max
TERM	1.45%	0.9156	0.0704	3.6486
RSI	54.86	11.30	26.5448	80.34
CDS	94.59	56.86	26.93	298.33
Volatility	0.0657	0.0236	0.0399	0.1908
BV	0.0556	0.0492	0.0035	0.3762

Number of observation : 144 from Jan 2003 to Dec 2014

Table 5.6 Fund flows with different investment type of funds

% FLOW	All	Large blend	Large growth	Large value	Mid blend	Mid growth	Mid value	Small
Volatility	-0.0736**	-0.260**	0.107**	-0.059	-0.601**	-0.143	-0.029	-3.359
	(-1.66)	(-2.180)	(2.430)	(-0.270)	(-2.320)	(-0.570)	(-0.090)	(-0.570)
RSI	0.0143***	-0.012	0.016**	-0.007	0.064**	0.063**	0.053	1.004**
	(2.220)	(-0.800)	(2.750)	(-0.310)	(2.040)	(2.060)	(1.520)	(2.370)
BV	-0.0549***	0.001	-0.057***	-0.039	-0.066	0.013	-0.139	-1.058
	(-3.69)	(0.020)	(-3.810)	(-0.550)	(-0.770)	(0.160)	(-1.280)	(-0.650)
TERM	-0.0024**	-0.002	-0.002	-0.004	-0.007	0.006	-0.015**	-0.048
	(-2.48)	(-0.600)	(-1.570)	(-0.880)	(-1.280)	(1.100)	(-2.070)	(-0.360)
CDS	-0.0033	0.006	-0.011	-0.004	0.017	-0.001	-0.009	0.160
	(-1.64)	(1.050)	(-5.490)	(-0.410)	(1.450)	(-0.070)	(-0.630)	(0.650)
RANK	0.002**	0.002	0.002***	0.000	-0.001	-0.002	-0.007***	0.040**
	(2.63)	(1.510)	(4.000)	(-0.300)	(-0.720)	(-0.930)	(-3.440)	(2.380)
Ln (TA)	-0.0256***	-0.042***	-0.026***	-0.023***	-0.018***	-0.019***	-0.034***	-1.284***
	(-24.62)	(-16.890)	(-23.280)	(-4.810)	(-3.510)	(-4.360)	(-4.810)	(-8.000)
Ln (AGE)	-0.011***	-0.014***	-0.007***	-0.009**	-0.015**	0.008	-0.025**	0.022
	(-10.04)	(-5.030)	(-5.500)	(-2.340)	(-2.690)	(1.350)	(-3.660)	(0.310)

GARCH(t-1) is the volatility of SET; BV is the volatility of fixed income market; CDS is the cds price; RSI (t-1) is the RSI 14-day index of SET.

From table 5.6, the Volatility have a negative coefficient to All, Large-blend and Mid-blend while positive effect for a Large - growth show that when the stock market is in the volatile condition fund flows is greater for Large-growth it's representational for the funds invested in large and growth stocks which is riskier than Large-blind or a Mid-blend. Mean by fund flows to riskier fund is increasing when the market is more volatile. This raises up the questions about the behavior of investors again because the results of the table 5.2 show that investor allocate their money into equity funds (which riskier than fixed income fund) and now in the table 5.6 also show that the money flows into Large-growth funds (which is risky asset). This behavior may be viewed as irrational.

For the RSI, it has a positive coefficient to All, Large-growth, Mid-blend, Mid-growth and Small. An interesting point is that The RSI has significant for only the Growth, Mid and small it has no effect on the less risky funds (e.g. Large-value and large-blend) because most of the investors using the RSI as a technical indicator to make a buy or sell signal. It may be that in the riskier fund investor have a market timing behavior while this behavior is invisible for large and value stock funds. Thus the positive coefficient of All, Large-growth, Mid-blend, Mid-growth and Small means the fund flow increase with the increasing of RSI (uptrend of RSI is the buying-signal). This study has shown the evidence of different behavior on the different type of funds. on the growth and small stock funds investors do a market-timing behavior they make a buy decision when the RSI is in the up-trend [17]

For the Term spread, it has a negative coefficient to all types of funds, although it's only significant for All and Mid-value which consists to model 1, the fund flow to equity fund is high when term spread is narrowing or economic cycle is going up to the peaks. This behavior is rational with the investment strategy but the study in the US. by John Chalmers he shows the positive coefficient mean by the investor in the US. allocate their money into equity funds when the economy is at the bottom and will recover in the future contrast to the Thais investor which seem to buy the equity funds when the economy is in the going-up trend. It's not having the concluding that what behavior is rational (buy equity funds when term spread is wide or narrow) but we see the different behavior between Thais and US. investors

For the CDS price, it has a negative coefficient for all types of funds although it's not significant but an interesting point is that it has a positive coefficient for Large-blend and Mid-blend which contrast to the model 1 (CDS price has a negative coefficient to equity fund's excess flow). The CDS price explains the market's aspect toward risk, when market percept the increasing of risk the CDS price will increase. Mean by the Large-blend and Mid-blend has a higher fund flow while the other funds have a lower fund flow when the CDS price is increasing. The result shows that the investors invest their money in the less risky fund when the CDS price is increasing.

In addiction I have study the fund characteristic affect to the mutual fund flows by adding the ln(AGE) and ln(TA) which is the age and total asset of mutual funds. It has a negative coefficient to the fund flows for both show that investor's fund flow

into the small funds which consistent to the studied done by Sawicki (2001) and Finn (2002) that young and small funds are attractive to the investors but it's contrast to the study by Sirri and Tuffano (1998) which show that large management funds can be attractive the investor because of more marketing expense including the large management company is easy for investor to informed to their product but our result is different. It may be due to the development of communication and internet which made investors easily to reach the mutual funds product and the management companies also deliver their advertisement to their clients.

In conclusion, on this session we study investment behavior for different type of funds which categorized by investment style (e.g. Large, Growth, Value, Small stock). for market condition we found that investor's behavior is differently for each type of fund. Mutual funds that considered as higher risk (Growth and Small funds) have increased of fund flow when the markets are volatile (measure by GARCH) while the other funds has a decreasing of fund flows (e.g. Large, Value stock). For the economic condition we found that the investor has a same behavior for different type of fund and fund flows are increasing along with the economy is going up to its peak. But for the CDS price in a high-risk funds the flows will less when the aspect of investors worries about the default risk (measured by CDS price) while in lower risk funds fund inflows have increased. Finally, for the characteristic of funds investor's fund flows seem to attractive by the young and small companies for all types of funds

After all, from the table 5.2 when we controlled for the month effect the excess flow on December is positive and significant. In order to study the month effect. I have added month variable into the model 2 and the result is shown in the table 5.7

From table 5.7, I have added the month variables into the regression model. Overall the result from table 5.7 is the look the same with previous table (table 5.6) but the significant level of many variables is better and some variable is turn to significant such as Mid-value funds it turns into positive significant with RSI. And the positive signs of GARCH on Large-value is still significant This emphasizes that the riskier funds (such as Growth and Small) have a positive relation to the GARCH (when the market is volatile the riskier fund has a higher of fund inflows).

For the month variables, it has positive significance, on August for All, Large-blend, Large-growth, Mid-value and All. In September for All and Large-growth. On October for All, Large-blend, Large-growth and Small. On November for All, Large-blend, Large-growth, Mid-growth. On December for All, Large-blend and Mid-blend.

For the RSI when we added the month variable the p-value is getting better and the Mid-value turn to significant. The coefficient is positive similar for all type of funds which similar to the table 5.6

For the CDS price some type of funds turns into significant after we added month variable. The Large-blend turn has a positive coefficient this makes us sure that the less risky funds will have increasing of fund flows when CDS price is increasing

while riskier funds (growth stock funds has a negative coefficient) have decreased of

fund flows.

Table 5.7 Fund flows with different investment type of funds and control for month effect

% FLOW	All	Large blend	Large growth	Large value	Mid blend	Mid growth	Mid value	Small
Volatility	-0.1065**	-0.304**	0.088**	-0.179	-0.684**	-0.206	0.047	5.361
	(-2.38)	(-2.520)	(1.990)	(-0.800)	(-2.600)	(-0.820)	(0.140)	(0.790)
RSI	0.0207***	-0.001	0.020***	0.002	0.083**	0.075**	0.075**	1.147**
	(3.68)	(-0.060)	(3.570)	(0.060)	(2.580)	(2.410)	(2.040)	(2.240)
BV	-0.0583***	-0.010	-0.051***	-0.066	-0.119	0.014	-0.122	-0.198
	(-3.83)	(-0.240)	(-3.350)	(-0.920)	(-1.350)	(0.160)	(-1.100)	(-0.110)
TERM	-0.0012	0.000	0.000	-0.003	-0.006	0.008	-0.014*	-0.110
	(-1.25)	(-0.030)	(-0.500)	(-0.580)	(-1.090)	(1.410)	(-1.950)	(-0.740)
CDS	-0.0013	0.010*	-0.010***	0.000	0.022*	0.003	-0.007	-0.172
	(-0.65)	(1.740)	(-4.750)	(0.000)	(1.870)	(0.260)	(-0.470)	(-0.570)
RANK	0.0006*	0.001	0.002***	0.000	-0.002	-0.003	-0.007***	0.052**
	(1.89)	(1.010)	(3.740)	(-0.150)	(-0.890)	(-1.300)	(-3.360)	(2.880)
Ln (TA)	-0.025***	-0.042***	-0.025***	-0.023***	-0.018***	-0.019***	-0.034***	-1.220***
	(-24.63)	(-16.840)	(-23.240)	(-4.810)	(-3.460)	(-4.400)	(-4.890)	(-7.230)
Ln (AGE)	-0.0121***	-0.016***	-0.008***	-0.010**	-0.017**	0.008	-0.025***	0.015
	(-11.05)	(-5.550)	(-6.430)	(-2.670)	(-3.140)	(1.240)	(-3.710)	(0.180)
February	-0.0029	0.003	0.000	-0.005	-0.005	-0.001	-0.014	-0.071
	(-0.89)	(0.390)	(0.000)	(-0.350)	(-0.250)	(-0.060)	(-0.710)	(-0.380)
March	-0.0037	0.000	-0.001	-0.009	-0.019	-0.001	0.017	-0.111
	(-1.13)	(-0.040)	(-0.380)	(-0.640)	(-0.990)	(-0.050)	(0.840)	(-0.580)

Month								
April	0.0025	0.004	0.004	-0.009	-0.005	-0.006	0.027	-0.025
	(0.76)	(0.430)	(1.100)	(-0.660)	(-0.250)	(-0.340)	(1.350)	(-0.130)
May	0.0055	0.013	0.004	-0.014	-0.021	-0.012	-0.002	-0.004
	(1.70)	(1.450)	(1.230)	(-1.020)	(-1.110)	(-0.640)	(-0.110)	(-0.020)
June	0.0014	0.009	-0.002	-0.009	-0.006	0.005	0.044**	0.086
	(0.43)	(1.010)	(-0.520)	(-0.640)	(-0.340)	(0.270)	(2.180)	(0.450)
July	0.0041	0.016*	0.001	-0.007	0.015	-0.006	0.028	0.025
	(1.29)	(1.900)	(0.380)	(-0.510)	(0.800)	(-0.320)	(1.390)	(0.130)
August	0.0045	0.023**	0.008***	-0.016	0.005	0.005	0.039*	0.078
	(1.41)	(2.620)	(2.360)	(-1.180)	(0.260)	(0.270)	(1.940)	(0.410)
September	0.0109***	0.014	0.012***	-0.012	0.002	0.006	0.032	0.122
	(3.37)	(1.610)	(3.700)	(-0.880)	(0.120)	(0.360)	(1.630)	(0.610)
October	0.0135***	0.016*	0.020***	-0.012	-0.013	0.006	0.025	0.376*
	(4.18)	(1.870)	(5.980)	(-0.870)	(-0.700)	(0.320)	(1.280)	(1.880)
November	0.0466***	0.061***	0.048***	0.007	0.024	0.057**	0.016	-0.288
	(14.53)	(7.090)	(14.560)	(0.550)	(1.350)	(3.230)	(0.830)	(-1.520)
December	0.0108***	0.019**	0.004	0.019	0.032*	-0.003	0.018	0.017
	(3.38)	(2.270)	(1.140)	(1.400)	(1.770)	(-0.180)	(0.940)	(0.090)

GARCH(t-1) is the volatility of SET; BV is the volatility of fixed income market; CDS is the cds price; RSI (t-1) is the RSI 14-day index of SET; Feb to Dec is the month dummy

In conclusion, when we have added the month variable. The economic and market condition remains explained the behavior of investor in the same way with table 5.6 and the p-value of regression result in table 5.7 has been improved. From the significant of month variables. We confident that month seasonality has an effect to the fund flows and behavior of investors. This raises the question what is the cause of abnormal fund flows in the month nearly end of the year. We suspect it may be because of tax-benefit funds (LTF/RMF funds). And we will examine this issues in the next part.

5.3 investor's behavior on tax-benefit funds
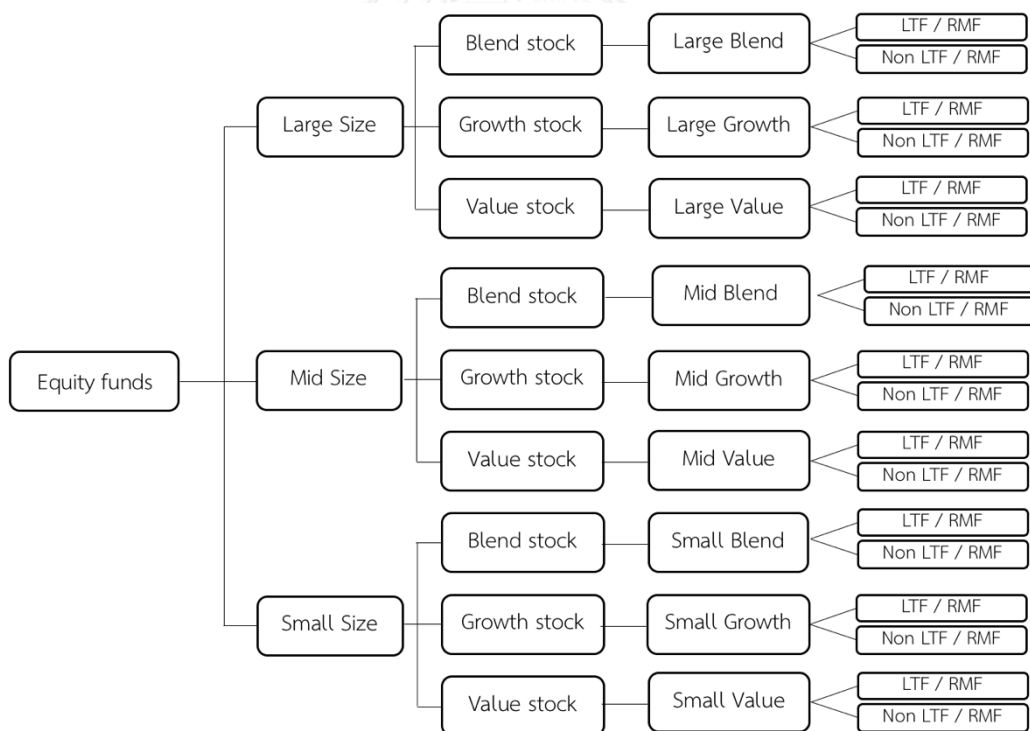
Fig 5.4 category of tax-benefit and non-tax-benefit funds

From the table 5.7 to clarify what is the cause of positive abnormal flows in the nearly end of the year. I have divided the whole sample into two groups LTF/RMF

and Non LTF/RMF as shown in fig 5.4 But unfortunately for LTF/RMF funds due to the

limitation of the data we can use only 4 categories, e.g. (large-blend, large-growth,

large-value, mid). Summary statistic of LTF/RMF sample is shown in table 5.8 and the

regression result is shown in table 5.9

Table 5.8 summary statistics for LTF/RMF funds

% FLOW	Observation	Funds	Mean	Std. Dev.	Min	Max
All	6638 Obs.	82	1.72 %	0.1194	-77.66 %	394.85 %
Large-blend	3417 Obs.	32	1.57 %	0.1598	-77.66 %	551.36 %
Large-growth	5139 Obs.	44	1.57 %	0.0941	-41.82 %	234.25 %
Large-value	164 Obs.	2	4.09 %	0.2428	-6.89 %	299.47 %
Mid	452 Obs.	4	2.34 %	0.0983	-28.07 %	90.02 %

Sample of LTF/RMF funds from Jan 2003 to Dec 2014

Variable	Mean	Std. Dev.	Min	Max
TERM	1.45	0.91	0.070	3.64
RSI	54.86	11.30	26.54	80.34
CDS	94.59	56.86	26.93	298.33
Volatility (GARCH)	0.0657	0.0236	0.0399	0.1908
BV	0.0556	0.0492	0.0035	0.3762

Number of observation: 144 from Jan 2003 to Dec 2014

Table 5.9 LTF and RMF fund flows with different investment style

LTF / RMF Funds	All	Large-blend	Large-growth	Large-value	Mid
Volatility	-0.1583	0.3573**	-0.0686	1.7310	-0.5093
	-1.2000	(2.0000)	(-0.8900)	(1.2300)	(-1.8000)
BV	0.0315	-0.0910	-0.0732	-0.2071	0.0345
	0.7100	(-1.5600)	(-2.8300)	(-0.4700)	(0.3600)
TERM	-0.0016	-0.0052	0.0011	-0.0684**	0.0066
	-0.5700	(-1.3300)	(0.6500)	(-2.0600)	(1.0400)
CDS	0.0018	-0.0094	-0.0007	-0.0768	-0.0037
	0.2800	(-1.0700)	(-0.2000)	(-1.0200)	(-0.2700)
RSI	0.0411**	0.0077	0.0455***	-0.0439	-0.0397
	2.3700	(0.3300)	(4.5000)	(-0.2500)	(-1.0600)
Ln(TA)	-0.0349***	-0.0278***	-0.0302***	-0.0226	-0.0041
	-13.0000	(-7.2300)	(-14.8900)	(-1.1200)	(-0.8400)
Ln(AGE)	-0.0055	-0.0160***	-0.0060**	0.0294	-0.0233**
	-1.6000	(-3.5200)	(-2.6200)	(0.9300)	(-3.0600)
RANK	0.0023*	0.0025	0.0033***	-0.0200**	-0.0026
	1.7600	(1.5500)	(4.4400)	(-2.2200)	(-0.9800)
February	0.0054	0.0080	0.0053	-0.0173	-0.0053
	0.5400	(0.6100)	(0.9000)	(-0.1800)	(-0.2500)

March	0.0007	0.0054	0.0004	-0.0120	0.0168
	0.0700	(0.4100)	(0.0600)	(-0.1300)	(0.7800)
April	0.0059	0.0154	0.0122**	-0.0124	0.0092
	0.5900	(1.1600)	(2.0800)	(-0.1300)	(0.4300)
May	0.0135	0.0284	0.0047	0.0198	0.0130
	1.3500	(2.1600)	(0.8000)	(0.2100)	(0.6000)
June	0.0110	0.0200	0.0101*	-0.0111	-0.0009
	1.0900	(1.5100)	(1.7200)	(-0.1200)	(-0.0400)
July	0.0055	0.0193	0.0096*	0.0146	-0.0063
	0.5500	(1.4800)	(1.6500)	(0.1600)	(-0.2900)
August	0.0283**	0.0191	0.0134**	-0.0176	-0.0063
	2.8400	(1.4700)	(2.3100)	(-0.1900)	(-0.3000)
September	0.0164	0.0336**	0.0230***	-0.0022	-0.0018
	1.6400	(2.5600)	(3.9400)	(-0.0200)	(-0.0800)
October	0.0313**	0.0355**	0.0411***	0.0382	0.0089
	3.1200	(2.7000)	(7.0300)	(0.4200)	(0.4100)
November	0.0943***	0.1251***	0.1136***	0.3021***	0.0870***
	9.4700	(9.6200)	(19.5900)	(3.3800)	(4.1000)
December	0.0406***	0.0539***	0.0201***	-0.0061	0.0602**
	4.0800	(4.1300)	(3.5000)	(-0.0700)	(2.8300)

We examine the behavior of LTF/RMF investors in the Table 5.9 and shows the regression result of LTF/RMF funds sample. Not surprising the month variables especially at the month nearly end of the year (e.g. October to December) has a positive coefficient and strongly significant for almost of all funds.

For the Volatility, surprising for the result that volatility is rarely significant for only one type of funds which show that the fund flows of LTF/RMF funds may not influenced by GARCH while in the previous model fund flows are influenced by GARCH and for the other economic variables e.g. TERM, BV, CDS, RSI it's also rarely significance. Thus the fund flows of LTF/RMF funds are not an explanation by the economic and market conditions.

For the month variables, all of the funds have positive coefficient and strongly significant at the nearly end of the year especially in the fourth quarter. The December and November are very significant for almost every type of funds. October and September are significant for All, Large-blend and Large-growth. August is significant for All and Large-growth.

Over all, the regression result of table 5.9 is differing from table 5.7 because the table 5.7 is included all samples of mutual funds but when remain only the LTF/RMF funds the result (table 5.9) is turning to be completely different in the significant of economic, market and month variables.

In conclusion, the rarely significant of variables is shown that the tax-benefit investors (LTF/RMF) have a different behavior from ordinary investors (non LTF/RMF).

But an interesting point for LTF/RMF funds is that it significant on month variables especially on the nearly end of the year while in the table 5.7 the month variable is rarely significant. It shows that tax-benefit investor's behavior be affected by the month seasonally. After this we can conclude that "month effect" is caused by LTF/RMF funds. In the next table I will drop out the LTF/RMF funds and leave only non LTF/RMF funds. And the result will show in the table 5.11

Table 5.11 shown the regression result of non-LTF/RMF Fund, for the volatility Large-growth and Small funds have a positive correlation to the GARCH's volatility, but for the Large-blend and Large-value the coefficient is negative which consistent with the table 5.6 and 5.7 that the riskier funds have increased of fund flows when the market is in volatile condition while contrast in the case of LTF/RMF funds.

For the RSI, it has a positive coefficient for All, Large-growth, Mid-blend, Mid-growth, Mid-value and Small. Which consistent to the table 5.6 and 5.7 but contrast to LTF/RMF funds which it's rarely significant.

For the Term spread, it's has a negative coefficient for all types of funds, but it's insignificant.

For the CDS, it has a positive coefficient for Large-blend and Mid but negative coefficient for Large-growth which consistent with previous model that all types of funds are negative coefficient except Large-growth is positive and in the LTF/RMF funds the CDS is not significant for any type of funds.

For the month variables, it's totally different from LTF/RMF. None of the funds are significant in December but All, Large-blend, Large-growth and Small are significant in November and only a bit of funds is significantly in October, September, August and July. While in case of LTF/RMF it significant in December and November for all types of funds and significant in October and November for almost all types of funds.

Table 5.11 Non LTF/RMF funds

% FLOW of Non LTF / RMF	All	Large-blend	Large-growth	Large-value	Mid	Small
GARCH	-0.3518***	-0.5533***	0.1188**	-0.3166	-0.3846*	5.3618
	(-2.93)	(-3.71)	(2.23)	(-1.53)	(-1.94)	(0.79)
BV	0.0191	0.0310	-0.0404**	-0.0439	-0.1164*	-0.1900
	(0.47)	(0.61)	(-2.18)	(-0.65)	(-1.75)	(-0.11)
TERM	-0.0020	0.0022	-0.0010	0.0028	-0.0054	-0.1102
	(-0.78)	(0.68)	(-0.91)	(0.63)	(-1.25)	(-0.74)
CDS	-0.0016	0.0154**	-0.0117***	0.0030	0.0177**	-0.1721
	(-0.29)	(2.28)	(-4.85)	(0.30)	(1.99)	(-0.57)
RSI (t-1)	0.0229	-0.0041	0.0141**	0.0023	0.1095***	1.1472**
	(1.58)	(-0.22)	(2.06)	(0.10)	(4.67)	(2.24)
Ln(TA)	-0.0627***	-0.0478***	-0.0254***	-0.0308***	-0.0238***	-1.2201***
	(-26.60)	(-15.16)	(-18.23)	(-5.30)	(-5.65)	(-7.23)
Ln(AGE)	-0.0228***	-0.0182***	-0.0088***	-0.0125***	-0.0119**	0.0145
	(-8.53)	(-5.23)	(-5.67)	(-3.56)	(-2.91)	(0.18)
RANK	0.0013	0.0007	0.0010*	0.0006	-0.0031**	0.0520**
	(1.41)	(0.56)	(1.93)	(0.51)	(-2.29)	(2.88)
February	0.0046	0.0030	-0.0017	-0.0062	-0.0074	-0.0705
	(0.55)	(0.28)	(-0.42)	(-0.49)	(-0.55)	(-0.38)
March	0.0112	-0.0009	-0.0018	-0.0095	-0.0133	-0.1107
	(1.33)	(-0.08)	(-0.45)	(-0.75)	(-0.98)	(-0.58)

	(1)	(2)	(3)	(4)	(5)	(6)
April	0.0153* (1.83)	0.0010 (0.10)	0.0005 (0.14)	-0.0103 (-0.81)	-0.0016 (-0.12)	-0.0247 (-0.13)
May	0.0001 (0.02)	0.0083 (0.78)	0.0037 (0.92)	-0.0140 (-1.10)	-0.022 (-1.64)	-0.0039 (-0.02)
June	-0.0045 (-0.53)	0.0061 (0.57)	-0.0059 (-1.47)	-0.0097 (-0.76)	0.0072 (0.54)	0.0861 (0.45)
July	0.0142* (1.72)	0.0160 (1.52)	-0.0018 (-0.45)	-0.0088 (-0.70)	0.0146 (1.10)	0.0249 (0.13)
August	0.0070 (0.85)	0.0245** (2.33)	0.0059 (1.48)	-0.0184 (-1.47)	0.0149 (1.13)	0.0778 (0.41)
September	0.0115 (1.40)	0.0087 (0.82)	0.0086** (2.14)	-0.0149 (-1.20)	0.0106 (0.80)	0.1219 (0.61)
October	0.0128 (1.55)	0.0112 (1.06)	0.0123** (3.07)	-0.0142 (-1.13)	-0.0034 (-0.26)	0.3757* (1.88)
November	0.0297*** (3.65)	0.0415*** (3.98)	0.0251*** (6.32)	-0.0158 (-1.29)	0.0182 (1.40)	-0.2879 (-1.52)
December	0.0094 (1.16)	0.0094 (0.91)	-0.0019 (-0.48)	0.0190 (1.56)	0.0108 (0.83)	0.0174 (0.09)

In conclusion for the model 2, first the result suggested that LTF/RMF funds is the cause of abnormal flows in the nearly end of the year (especially in Oct, Nov and Dec) because when I use the funds samples exclude the non LTF/RMF funds, the month variables are rarely significant (e.g. not significant in December). But when I use the funds sample exclude non LTF/RMF funds (used only LTF/RMF funds) the month variables is very significant. From all of this I can conclude that the abnormal flows in nearly the end of the year comes from LTF/RMF funds.

Second, when comparing the result of economic and market variables on the sample between LTF/RMF, non LTF/RMF and all samples. The result of non LTF/RMF is most significant followed by all samples and LTF/RMF. But the month variable is strongly significant for the LTF/RMF funds. Which means non LTF/RMF investor's behavior is influenced by market and economic condition while LTF/RMF investor's behavior is mostly depending on the season (LTF/RMF fund flows is influenced by the month nearly the end of the year).

Third, when comparing the result which used a sample between non LTF/RMF and all samples. Generally, the results from these two samples are the same unless the result of non LTF/RMF funds is better and more significant than All samples. This is because we took LTF/RMF away.

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5.4 Trigger Funds

After we have considered other types of mutual funds. The other interesting point of Thais investor's behavior is the Trigger funds which has been broadly discussed by foreign fund managers as "Made in Thailand Fund" because this kind of fund has first launch in Thailand. In order to investigate what factors is causing the opening of triggers funds. I have a hypothesis that the Trigger funds are an attempt of mutual funds investor to perform a market timing. Then to track the market trend, I have added an explanatory variable to represent the condition of the stock market which is the RSI (Relative Strength Index).
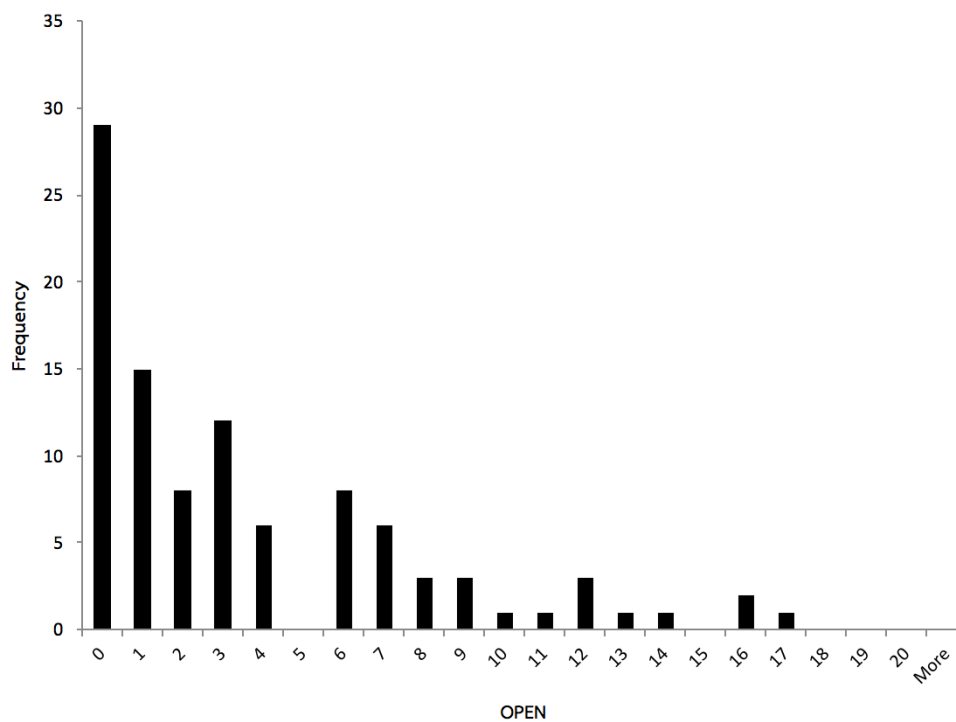

Fig 5.5 the histogram graph of the opening trigger fund observation

From the histogram graph in Fig5.5, we observed the number opening funds is must greater or equal to zero It can not observe opening funds below zero. So I use the censored limits regression model which is a Tobit regression model developed by Tobin (1958) and specified the lower limit equal to zero.

$$OPEN = \beta_1 GARCH_{t-1} + \beta_2 RSI(t-1) + \beta_3 NAF + \beta_4 TERM + \beta_5 BV + \beta_7 CDS$$

Which is used RSI, NAF (The number of funds open in the particular month) as an independent variable, other variables same as previous model including monthly variables to predict the opening of the trigger funds.

Trigger Funds	Mean	Std. Dev.	Min	Max
OPEN (per month)	3.65	4.21	0	17
GARCH Volatility	6.73%	2.64%	3.79%	19.08%
Term spread	1.21%	0.74	0.07%	2.85%
Bond's volatility	5 %	0.0535	0.95 %	37.62%
CDS Price	1.17	51.82%	0.2693	2.98
Number of Available Fund	34.72	31.80	0	105
RSI	0.5481	11.64	0.2654	0.7627

The table 5.7 shown the result of the Tobit regression model which shows that the RSI, NAF, CDS has a positive coefficient while GARCH has a negative coefficient and strongly significant to the opening of the trigger funds.

Table 5.7 Trigger funds

Tobit regression	Number of observation=100 R-Square = 21.29 %
OPEN	Coefficient
Volatility	**-93.2277****
	(-2.86)
TERM	0.3452
	(0.58)
BV	-4.9122
	(-0.51)
CDS	**0.0231***
	(1.88)
NAF	**0.0883*****
	(5.87)
RSI	**0.1126****
	(3.22)
February	0.9585
	(0.55)
March	2.7582
	(1.65)
April	1.0422
	(0.63)
May	-0.5645
	(-0.32)
June	3.3978
	(2.01)
July	1.5576
	(0.91)
August	0.9553
	(0.56)
September	-0.5640

	(-0.33)
October	-0.0390
	(-0.02)
November	2.6586
	(1.56)
December	0.2063
	(0.12)
Obs.	summary:29 left-censored observations at open<=0
	71 uncensored observations
	0 right-censored observations

The RSI measures the strengths of the stock market. A positive coefficient to the opening of trigger funds indicates that the management companies is launching the trigger funds when the RSI is increasing. Many investors in the financial market are using the RSI-14 as a technical analysis indicator for buying or selling signal. It implies that the management company launching the trigger funds when they expect that the market is turning to be an up-trend (Buy Signal).

For the Volatility, it has a negative coefficient which means the trigger funds is open when the market is in the low volatile condition and the volatility of the market is positive relation to the expected return of stock argued by K. French (1986). So the trigger funds is launching when the market expects a lower expected return.

For NAF (number of available fund), which is positive and strongly significant show that the release of Trigger funds is depended on the number of funds that is already open at that month. It can be analyzed this is because usually investors have

a herd behavior and Andrew Koch (2012) argued that "fund managers might herd because they obtain similar information or because of non-informational drivers". In our case it is because when most of the investors are looking to buy a fund during the up-trend of the market (attempt to do market timing) Therefore, the trigger funds opened up simultaneously.

In conclusion, since this topic is very new and none of research paper has done on this. Our notation to the triggers fund is based on the behavior finance theory. The "over-under reaction Theory" which attribute from at lease three factors (1) Different on psychological (2) Different type of Investors and (3) this theory not consistent to market efficiency hypothesis. If we observe type of investor in Thailand, individual investor is a major part in the stock market (approx. 60% of trading volume) which marks as one of the most individual investors driven market. Moreover, for the psychological basis of Thais a study done by Dr. Pinij Larpthananon (2014) argued that online gambling is popular in Thailand 64.2% of the respondents have gambled in the past year and most of them are younger. The trigger fund is similar to the gambling because when the fund's profit reach the trigger level liquidates, closing the unit of fund holding is automatically forced, but if the fund makes a loss the unit holders are forced to hold unit. Mean by investor have a limited profit but unlimited losses. And in Thailand the market is classified as the one of the most inefficient market (Sardar M. N. Islam, Sethapong Watanapalachaiku; 2007 Journal of emp.fin). So the trigger fund is the investment product which launch in the period when the stock market is

expected to go into an uptrend. In the bear-market investor seem to over-react which

drive the price down below the true value (Werner De Bondt and Richard Thaler; 1985).

Then the management company launched the trigger fund to attractive the fund from

investors. And in the bull market which stock price has kept going up, investor behavior

seems to under-react, they have an overconfidence hence, the price up above the

true value which they should sell the stock but many investors neglect to do so, either

because of greed, they want higher gains from the asset that is outperforming. Thus

the trigger has a trigger level force investor to redeem their unit.

6. Conclusion

The aim of this paper is to study the asset allocation behavior of investors due to the economic and market condition. The tax-benefit funds, Trigger funds, the unique of behavior and the special structure of investing in the market this is the reason that Thailand is interested in the study and The major indicators used to capture economic and market conditions is GARCH Volatility, RSI, Term spread and CDS price.

for the market condition, the study shows that when the market is volatile Investors invest in equity funds and typically invest in the growth stock funds and for the economic condition investor typically buy equity fund when the economy is going identically to every funds but when observer to investor's degree of risk aversion (used CDS price as the proxy) growth stock funds have a decreasing of fund flows while low risk fund have an increasing of fund flow. It may be wondered why the degree of risk aversion does not make identically effect to every funds like economic condition it because of the degree of risk aversion is not the fundamental factor it's just an investor's outlook to risk. The unique characteristic of the growth stock is that its price already reflects the opportunity then if the investor's risk aversion change a little bit it will cause the extremely out of fund flows. Which reasonable to affect in negative coefficient to high risk funds. More over this study has found an abnormal flow in the month nearly end of the year which caused by tax-benefit funds (e.g. LTF and RMF). Thus, this study further for the behavior of LTF/RMF investor and concluded that the

abnormal flows in several months came from the LTF/RMF investor. Then we discovered the difference in behavior between non-tax benefit and tax-benefit investors. The difference is that the behavior of tax-benefit investor (LTF/RMF) will buy the funds at the near end of the year without considering the economic or market condition.

And the other types of funds it very attractive in Thailand is "Trigger funds" and none of research has done on this. For This fund investors cannot redemption their unit of holding until the funds were closed and The Fund will be close down by automatically when its returns reach the target otherwise it will open indefinitely until the maturity date show that investors can gain limited but unlimited losses. This strange nature of Trigger fund making it interesting. It is suspected What are the causes of this behavior in the purchase fund. And this study is suspected that because of the efforts to perform the market timing. And the experimental results, it shows that the RSI Index which shows the trend of the stock market have a huge impact on the opening of the trigger funds. While GARCH volatility which can be explain the behavior of fund flows in the other type fund cannot explain the opening of Trigger funds. It can be concluded that the management company launching the trigger funds when they expect that the market is turning to be an up-trend (attempt to perform a market-timing).

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APPENDIX

From many studies one of the factor that affect to the mutual funds flow os the CCI (Consumer confidence index) but in our regression we cannot add CCI as an regressor due to concerning of unit root problem. so this study added the differentiate of CCI instead of CCI and the result is still the same as not adding Δ CCI and the regression which add Δ CCI is shown in the below table I and II for robustness check purpose.

Table I

	Equity		Fixed income		Mix	
GARCH (t-1)	**0.195***	**0.177***	-0.457	-0.407	0.244	0.227
	(1.930)	(1.800)	(-1.280)	(-1.220	(1.250)	(1.170)
RSI (t-1)	-0.010	-0.009	0.033	0.032	0.004	0.004
	-1.170	-1.060	0.990	0.990	(0.170)	(0.170)
BV	0.005	0.011	-0.106	-0.131	0.066	0.070
	0.210	0.410	-1.330	-1.520	(1.560)	(1.450)
TERM	**-0.005***	**-0.004***	**0.019***	**0.018***	**-0.008***	**-0.008***
	-1.970	-1.850	2.410	2.300	-(2.130)	(-2.030)
Δ CCI	-0.050	-0.052	0.049	0.094	0.312	0.314
	-0.820	-0.790	0.230	0.400	(1.890)	(1.590)
CDS	**-0.010***	**-0.010***	**0.030***	**0.029***	-0.012	-0.012
	-2.540	-2.360	2.470	2.330	(-1.620)	(-1.680)
February		0.004		0.006		-0.008
		1.200		0.370		(-0.950)
March		0.005		-0.005		-0.001
		0.800		-0.290		(-0.050)
April		-0.001		0.015		-0.001
		-0.220		0.940		(-0.080)
May		0.002		-0.002		0.001

	0.330	-0.120	(0.050)
June	0.004	-0.015	-0.009
	0.780	-0.880	(-0.640)
July	-0.001	0.013	-0.007
	-0.300	0.810	(-0.670)
August	0.005	-0.002	-0.004
	1.340	-0.180	(-0.360)
September	0.005	-0.012	-0.006
	1.230	-0.690	(-0.540)
October	0.001	-0.004	0.012
	0.280	-0.250	(1.050)
November	0.001	0.020	0.008
	0.210	0.910	(0.620)
December	**0.008***	-0.024	0.012
	1.830	-1.330	(1.510)

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