Stock return dispersion and performance of domestic equity funds in Thailand

Mr. Pavit Sae-eng

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การกระจายตัวของผลตอบแทนของหุ้นและผลการดำเนินงานของกองทุนตราสารทุนในประเทศไทย

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By	Mr. Pavit Sae-eng
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Thesis Advisor	Tanawit Sae-Sue, Ph.D.

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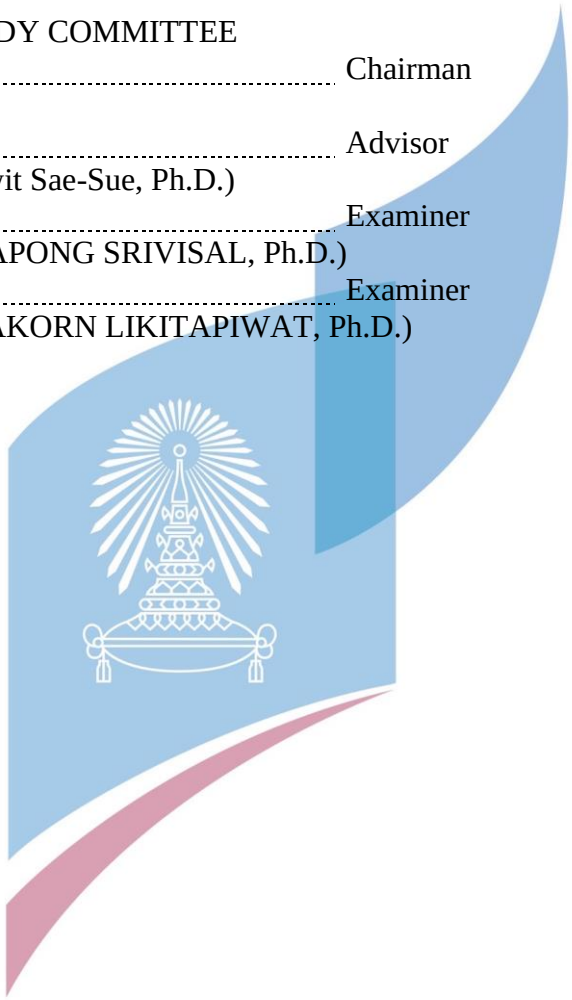
INDEPENDENT STUDY COMMITTEE

..... Chairman
()

..... Advisor
(Tanawit Sae-Sue, Ph.D.)

..... Examiner
(NARAPONG SRIVISAL, Ph.D.)

..... Examiner
(TANAKORN LIKITAPIWAT, Ph.D.)



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We examine the relation between cross-sectional return dispersion and actively domestic open-ended fund performance in Thailand, with the rationale mechanism that in the time of high return dispersion, where provide the opportunity for the fund managers to generate the positive value of abnormal return. Consist to the finding in US data that the period of the highest return dispersion the most activeness fund significant outperform the least activeness fund. Thai data provided the added value that active fund with the moderate to high activeness earn positive abnormal return in the period of the highest return dispersion. we also find the meaningful interpretation that the clearly pattern of result in the relation occur only in the non-simultaneous analysis.

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Introduction

Overview of mutual fund industries in Thailand

For a long time, mutual funds have played a crucial role in the global financial market as they become increasingly popular tools to invest. Especially in Thailand, one of the emerging markets, mutual have significantly increased the total net asset value from about 2.03 trillion Baht in 2010 to around 5.03 trillion Baht (AIMC, 2020), this amount includes the equity funds of 1.45 trillion Baht and Fixed income funds of 2.3 trillion baht and others. In addition, mutual fund investment is the one of key factors that drive the growth of Thai economy which held 30 percent of GDP in 2020, and around one- fifth of the households in Thailand invest in mutual fund. Numerous advantages of the mutual fund are contributed to investors, such as diversification, liquidity and flexibility. Passive fund managers would expose the return of portfolio to investors by simply tracking the market index with proper diversification. Active fund managers, who are taking all their effort to find the better performing investment and generate excess return from market benchmarks, focus on applying tools and information in the strategies to prevent themselves from bad performance.

Return dispersion and fund performance

Recently, the studies of mutual fund have concentrated on its performance. Some try to propose the new methodology or model to evaluate the performance of fund. Many studies try to investigate whether performance of funds can be affected or explained by any particular factor. For example, Chen et. al. (2004) provided the evidence that fund size has significant effect on its performance when investing in small capitalization. This study focusses on a market environment factor, return dispersion which also known as cross-sectional volatility, and tries to investigate its effects on the

fund performance. Silva, Sapra and Thorley (2001), in the U.S., documented that increasing in securities return dispersion provides better cross -sectional alpha return volatility, regardless to manager's skill or information efficiency. Von Reibnitz (2017) found that, the funds which have high activeness can be applied with the strategy to generate positive return when in the period of high dispersion. Cao (2020) suggested that investors could be advantaged by applying switching strategy during the period of dispersion, in doing so, those invest in active fund in period of high dispersion and invest in passive fund in period of low dispersion. Ankrim and Ding (2002) found that changes in the level of cross-sectional volatility have a significant association with the distribution of active manager returns.

The underlying rationale behind the relationship between the return dispersion and fund alpha is that in the time of high dispersion where provides the opportunity for fund managers take the advantage to generate alpha, since the increasing in weight of particular stocks that are affected from this market environment will be payoff. Busse (1999) documented that fund managers adjust their portfolio risk to earn higher return when conditional volatility is high. Gorman et. Al. (2010) found that regardless of the manager's skill, environment of high return dispersion represents opportunity to earn higher active return as the active managers will adjust their weight with the active return increase. On the contrary, when stock returns are similar, there will be a limit opportunity and become difficult to be outperformance both before and after fees. The case of activeness which correlate to the fund managers skill are suggested by Amihud and Goyenko (2013), they proposed that R2 can predict the performance of fund, which derived from a regression of return multi-factor benchmark. The lower R2, the greater

activeness and reflect the better performance. And Cremers and Petajitso (2009) suggested fund with high active significantly outperform their benchmark.

More evidence suggested that high dispersion provides the market environment where fund managers can take the advantage of this opportunity with superior ability to earn excess alpha. Fei, Liu and Wen (2019) suggested that the information of the return dispersion tend to provide economic valuable for investors to examine when to invest in any securities. Kosowski (2011) suggested that the positive return performance of mutual fund is attributable to recession period. Kacperczyk and Seru (2007) find that funds with firm-specific information provide the better performance. Loungani, Rush and Tave (1990) constructed the index for dispersion of stock prices and find that dispersion significantly affect unemployment.

Nonetheless, a number of mutual funds studies are carrying on developed market, this study conducts within Thailand, one of the emerging market, that display some specific characteristic which are different from developed market. Barry, Peavy jr. and Rodriguez (1998) find that emerging markets not only have experienced a high level of volatility, but also have consistently diversification benefit. And Bakaert and Harvey (2002) suggested that returns in emerging market deteriorate from several factors such as high volatility, high trading cost and the frequency of trading. Qureshi, Kutan, Ismail and Gee (2017) find that in emerging market, the equity fund flow increase can affect increasing in market volatility. Due to the rationale under the relationship are a function of cross-sectional volatility (Gorman, Sapra and Weigand, 2010), then the specific characteristic of emerging market drives its more interesting.

Objective

This paper examines Thai mutual fund performance which are affected by stock return dispersion using the multifactor model. Fund performance can be measured by alpha which managers produce. The term activeness which obtained from rolling regression to produce R^2 is developed to facilitate the test comparing to return dispersion. Then, dispersions are estimated using the equally weighted average standard deviation of each stock return versus market benchmark. Then, sorting them into each quintile portfolio.

The main aim of this study is that to examine the return dispersion which affects the fund performance in each level of activeness. With the underlying mechanism behind the relationship between return dispersion and performance of mutual fund, the period of high return dispersion provides an opportunity for active manager to generate positive alpha.

Regarding return dispersion, there are some studies focus on the relation between fund performance and its high period return dispersion. Wermers (2013) finds that funds with higher levels of return volatility provide better performance. Thus, it becomes another objective of this study that is to investigate the significance performance and pattern of alpha, especially in highest return dispersion relative to level of activeness.

The last aim of this study as it focuses on a particular aspect, cross-sectional volatility of stock return, the one of characteristic of emerging market that is the stock market is more volatile than the developed market. Thus, active fund managers should take this advantage opportunity to perform better than its benchmark and reflects to

comprehensive picture of mutual funds industries. Moreover, this study can fill the gaps of mutual fund literature in another dimension in Thailand.

Contribution

The meaningful contributions of the active opportunity are provided for investors and researcher. The usefulness of this study for both ex-ante and ex post, as it become a valuable information about the opportunity in the market to generate positive return and beating the benchmark.

Ex ante, fund managers, especially active, can apply the opportunity in the formation of active strategies to beat the benchmark and try to generate the alpha return due to the particular advantage moment provided. Nonetheless, the study can be either used by individual investors as one of the instruments to seek informed signal for whether and when to invest in the active funds.

The valuably knowledge of the return dispersion can also be useful in ex post. As the one of several way to evaluate fund performance, which applied by investors, speculators and all market practitioners. Regarding the term activeness that used in this study reflects how active the managers are, and whether they are able to adjust their strategy of investment or adopt these particular advantage opportunities to earn positive return.

In addition to the instruments for the individual investors or market practitioners, it can fill one of the gaps in mutual fund studies in emerging markets, especially Thailand. Since the market display several characteristics such as the investors behavior, the volatility of major market or the political uncertainty, which are not found in developed markets.

Literature review

The growth of mutual funds in Thailand has significantly increased during the past few decades and shape the future development in financial industry. One of the determining factors that investors concern is the performance of mutual fund, which make their decision more complicated. However, fund with superior performance in the past does not mean that it persistently performs well in the future (Carhart, 1997). Although there are many factors which affect the mutual fund performance, return dispersion is the one of those factors, however this study is focusing on. Under the mechanism that the period of high cross-sectional volatility provides the valuably opportunity for investors to earn the excess return. The part of literature review is organized as stock return dispersion, activeness and fund performance and return dispersion and fund performance.

Stock return dispersion

Stock return dispersion or can be thought of as cross-sectional volatility which is the single period cross-sectional standard deviation of return within an asset class, derived from the formula, an equally weighted return standard deviation relative to its benchmark in each month.

Gorman, Sapra and Weigand (2010) interpret that the cross-sectional dispersion is relevant as a measure of risk in the aspect of active investor. They develop the analytic framework which are Modern Portfolio Theory and Active Portfolio Management and find the major conclusion as follow 1). There are two main drivers of cross-sectional dispersion that are the return dispersion has positive relation with the

average volatility of securities and it has negative relation with the average correlation of securities. 2) Active portfolio returns are comprising with a function of cross-sectional dispersion and managers' skill; the active return will be greater when the cross-sectional volatility is higher. 3) The cross-sectional dispersion relates to total risk, systematic risk and especially positive affect to idiosyncratic risk. 4) Because of the cross-sectional dispersion is coming with cross-sectional risk, the study find that active managers tend to deduct their active portfolio weight as the cross-sectional dispersion arise. 5) The finding is consistent with the Fundamental Law of Active Management, that is when cross-sectional dispersion is increased, the expected return of active portfolio will be increased.

Activeness and fund performance

Recently, various of studies show that active fund management have positively affected its performance, the measurement of active management typically uses the deviation of return of funds holding form particular benchmark. Thus, the information and indexes are required to use as the analytic data. However, these are difficulty and sophisticate to derive and even to calculate.

Amihud and Goyenko (2013) are coming with a new more facilitate measure of active management of mutual fund, which they termed it as 'Selectivity' or known as activeness. this term is obtained form fund's R^2 by perform the rolling regression of its return on multifactor benchmark model with controlling fund's characteristic, style and past performance. Selectivity is the proportion of the fund return variance, which is explained by the variation in these factors. The less R^2 the more activeness of funds due to the non-systematic risk. They also suggested that R^2 is a tendentiously predictor of

fund return. They were sorting funds into quintiles by their R^2 and alpha, and find that the portfolio with the lowest R^2 and highest alpha generates a net significant alpha of 3.8% in the subsequent period, depending on the benchmark factor model used.

More studies examine the consistently positive relation between fund's activeness and its performance. Cremers and Petajitso (2009) propose a new measurement of fund active management, labeled as 'active share', which is estimated by using data on the portfolio composition of mutual funds, and also the benchmark indexes. Thus, the definition of this measurement is that the fraction of the active portfolio which is different form its benchmark. Comparing to the traditional measurement of active management – tracking error, the study suggested that active share is more convenient the traditional one, while the tracking error is considering the covariance matrix of return and emphasized on correlated active bets. However, both can be use together comprehensively evaluate fund performance. Furthermore, they illustrated dimensions of active management relate to the performance measurement that are funds with high active share reflect the better selection of stocks even it has low tracking error because the stock selection can lead to the deviation from their benchmark. This study used the data of U.S. mutual funds and the composition of portfolio with their benchmark. The result of this study is that funds with high active share provide a significant outperformance from their benchmark by 1.5 – 2.4% p.a. net of fees. On the other hand, the lower active share fund underperforms their benchmark before fees and even worse after fees. Meanwhile, tracking error is not related to fund alpha.

Return dispersion and fund performance

The mechanism driven relationship between stock return dispersion and fund performance can be explained that the time of high dispersion provide the opportunity for fund manager to perform their ability generating fund alpha and reflect to better fund performance. There are some studies examine this relationship, Silva, Sapra and Thorley (2001) adopted the 25 largest U.S. actively funds within the period 1991 to 2000 and use the excess return relative to benchmark model to obtain the alpha. The result of this study shows that in 1994 with the narrowest of return dispersion of 22.63% can produce the least excess return in the particular period. In contrast, funds can generate higher substantially excess return in the wide dispersion years.

Von Reibnitz (2017) uses S&P 500 of stocks with U.S. active equity funds covered the period from January 1972 to December 2013. Selectivity or activeness which form pervious study is adopted. To examine whether fund performance of differing subsequently levels of activeness are affected by market dispersion environment by sorting return dispersion and fund's selectivity into quintile. Subsequently, they examine risk adjusted return using Fama, French and Carhart multifactor model. The results show that during high dispersion month, active fund with higher activeness can generate alpha of 3.9% per annum, which is greater than the less activeness fund. Furthermore, using the formula of excess return that deviate from its benchmark, the outcome show that the most active fund persistently generates highest alpha of 9.21% p.a. during the period of highest dispersion.

Cao (2020) studied the relationship between return dispersion and fund performance in Australian equity market. Using the largest size of firms listed in market and subsequently rank them into quintile and consider 728 equity funds covered the

period from August 1991 to July 2018. Applying the Fama and French multifactor model, the result of the study is consistent to what Von Reibnitz (2017) found that is fund with greater activeness earns the higher alpha than the lower one either lower or higher dispersion. In addition, fund with highest activeness can produce its return alpha of 7.76% per annum in the period of greatest dispersion. The paper also extent the study to investigate the effect of fund size and fund style on performance during the differing level of dispersion. By categorizing them into large, medium, small, value, growth and blend, the result show that small-cap fund can provide the highest alpha during high dispersion period with 10.76% p.a. Moreover, there is some significant alpha return of5.89% p.a. in fund with value investment style.

Hypothesis Development

This study examines the relationship between stock return dispersion and fund performance. Silva, Sapra and Thorley (2001) found the evidence that in the period of high dispersion, funds will outperform the benchmark with the logically explanation that during high dispersion there exist an increasing number of stocks that beat the benchmark, by selecting the right stocks, it will provide significant opportunity for fund manager to generate positive alpha. Thus, we develop the hypothesis to test whether funds outperform during period of high return dispersion as shown:

Hypothesis 1 :

H0: $\alpha \leq 0$, H1: $\alpha > 0$

Recently studies have extended the previous finding to more comprehensively and more precisely, Von Reibnitz (2017) and Cao (2020) applied the term of activeness of funds to categorize alpha. Adopted the method from Amihud and Goyenko (2013)

who proposed the term selectivity (can also call activeness) which retrieve from performing regression model to obtain R^2. Von Reibnitz suggested that funds with higher activeness significantly perform well in the time of highest return dispersion. Her work is consistent with the underlying rational that fund managers who have higher level of activeness are able to take this particular opportunity to earn positive alpha. Kacperczyk, Nieuwerburgh and Veldkamp (2014) found the evidence that in period of high cross-sectional volatility, either boom market or recession, fund managers can exhibit their ability to outperform the benchmark. Following prior work, our study uses the process of 5*5 doubled sorted to rank the return dispersion and fund activeness into quintiles and we collect the alpha return on each group. Then, we conduct the hypothesis H2 and H3 to test that the most activeness funds outperform fund with least activeness in the period of highest return dispersion and further tested in time of lowest return dispersion.

Hypothesis 2;

H0: $\alpha_{A5,RD5} - \alpha_{A1,RD5} \leq 0$, H1: $\alpha_{A5,RD5} - \alpha_{A1,RD5} > 0$

Hypothesis 3;

H0: $\alpha_{A5,RD1} - \alpha_{A1,RD1} \leq 0$, H1: $\alpha_{A5,RD1} - \alpha_{A1,RD1} > 0$

According to the hypothesis H2, we expect that, because of the widest return dispersion drives fund managers who have the most activeness to apply their skills to perform better than the least activeness one. This, funds with highest activeness should outperform funds with lowest activeness. On the other hand, hypothesis H3, we expect that the most activeness should not perform well relative to the benchmarks and even worse for the least. Consist with the finding from Von Reibnitz (2017) that is when

return dispersion is narrowest, both funds with highest and lowest activeness are indifferent due to the limited chance to significantly outperform the benchmarks.

This paper, in addition, explores the relationship in another dimension that is examine funds with high activeness can be performed better when the return dispersion is increased. Foran and O'Sullivan (2017) find the strong evidence that fund managers' ability will solely successfully outperform when conditional market volatility is higher than moderate, consistently with the mechanism behind the relation that funds are adjusted its risk when conditional volatility is high to generate higher risk adjusted return. Thus, the hypothesis is developed as follows.

Hypothesis 4;

H0: $\alpha_{A5,RD5} - \alpha_{A5,RD1} \leq 0$, H1: $\alpha_{A5,RD5} - \alpha_{A5,RD1} > 0$

Hypothesis 5;

H0: $\alpha_{A1,RD5} - \alpha_{A1,RD1} \leq 0$, H1: $\alpha_{A1,RD5} - \alpha_{A1,RD1} > 0$

The hypotheses above are testing whether in the level of highest activeness, investing in funds in period of higher return dispersion perform better than investing in funds in period of lower return dispersion and we expect that highest activeness funds perform better during the time of highest return dispersion, since there are more chance where fund managers can take it to enhance the fund return. In contrast, there will be indifferent performance between funds at highest dispersion and lowest dispersion.

Data

To examine whether the dispersion of return affects fund performance, two mains' data are required. The stock return data is required for calculating return dispersion and return on mutual funds is required for rolling regression to derive funds'

R^2 to estimate funds' activeness. All data are in monthly basis and cover the period 2006 to 2020. In this section is organized as cross-sectional return dispersion, mutual funds data and market factor.

Cross-sectional return dispersion data

To estimate the stock return dispersion in Thailand, the historically collected samples of stock listed in Stock Exchange Thailand (SET) are derived from DataStream including total return index, market value and price to book value. The samples are, on average, 795 constituents spanned over 180 months from May 2006 to December 2020. The total return indexes are in monthly basis obtained at the last trade day of each month. To avoid the distortion of dispersion measure, all missing and suspended data are removed. Table 1 represents the summary basic statistic for return dispersion. Table 2 report monthly transition matrices across return dispersion quintiles for month t and one month prior. The estimates show that stock return dispersion is relatively persistent, especially in the highest return dispersion (RD5). The table shows that if the current month cross sectional returns are highly dispersed (belong to RD5), the next month return will likely continue to be highly dispersed (there would be a 61.11% probability of remaining in RD5 in subsequence month). Figure 1 shows the time series of equally weighted monthly return dispersion over the study periods. It illustrates that the time of high period dispersions are occurred in 2006, 2008, 2012, 2014 and 2016.

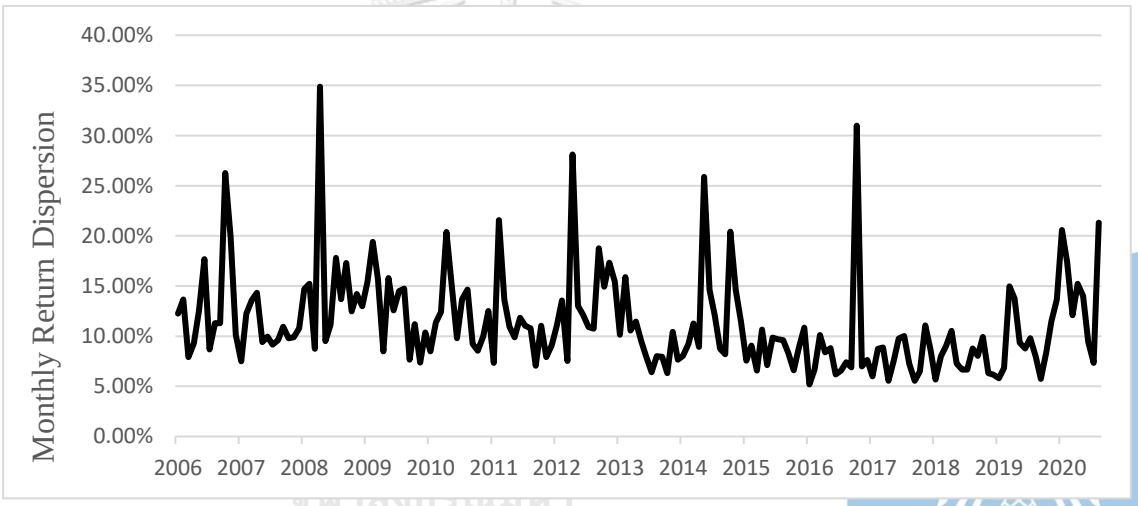
Measure	Mean	Standard Deviation	Max	Min	No. of stocks	No.of months
Return dispersion	11.71%	6.17%	53.24%	5.19%	384	180

Table 1 Summary statistics for return dispersion

RD Quintile (t-1)	RD Quintile (t)				
	RD1	RD2	RD3	RD4	RD5
RD1	34.43%	17.14%	31.29%	8.57%	8.57%
RD2	17.14%	31.43%	25.71%	20.00%	5.71%
RD3	20.00%	17.14%	17.14%	34.29%	11.43%
RD4	20.00%	25.71%	11.43%	22.86%	20.00%
RD5	8.33%	8.33%	11.11%	11.11%	61.11%

Table 2 Transition matrice for return dispersion quintiles

Figure 1: Time series plot of return dispersion



Mutual fund data

The samples of Thai equity funds covered from May 2009 to December 2020, with 36 months prior to the particular period for estimating funds' R^2. All funds return data are in monthly basis with survivorship biased free. This study constraints fund samples to be actively managed domestic Thai open-ended funds of 456 funds. The data are filtered to remove fund with other currency excepted Thai Baht. Moreover, excluding funds with its name contain Global, any foreign equity, or SET indexes. To

find the fund's alpha, the samples must contain at least 36 months prior to month t and excluding mutual funds which recently public offer (e.g., one year or two years) for preventing the distortion in results from rolling the regression. For instance, if mutual fund had offered to public in January 2015, this study would focus on February 2018 and using data from January 2015 to January 2018 (using over 36 months of data) for obtaining R^2 and all coefficient results for subsequent month.

Market factors return

The market factor returns which are used in the multi-factor model are developed by using Swanson's Rule. 3*3 double sorted table is developed with all of the stocks listed in stock exchange of Thailand. By sorting the value of market-cap from smallest to biggest, and price to book value from highest to lowest using the Swanson's 30-40-30 Rule in each month. Hurst, Brown and Swanson (2000) defined the approximation term to estimate mean value, and Moghadasi and Jensen (2013) provided the evidence that although the arithmetic average is good and unbiased, but Swanson's Rule is more efficient and less standard error than. 3*3 double sorted is as follows.

Variable		**Market Capitalization**		
		Small	Medium	Big
Price to book value	High	RSH	RMH	RBH
	Mediam	RSM	RMM	RBM
	Low	RSL	RML	RBL

Methodology

This study provides the empirical evidence between stock return dispersion and mutual fund performance. This paper use data which retrieves from Thai market and for facilitated, the paper prepares data by sorting them into quintile, then investigate how stock return dispersion in higher level (lower level) can affect to higher (lower) level of fund performance. Following the work of Von Reibnitz (2015) this study will also divide funds into different level of activeness and investigate how return dispersion and activeness level can simultaneously affect excess return of funds.

Stock return dispersion

To measure the set of opportunity for active funds, the calculation of return dispersion will be in monthly. The return dispersion in each month t (RD_t) is obtained using the equally weighted cross-sectional standard deviation, as follow

$$RD_t = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(R_{i,t} - R_{m,t})^2} \quad (1)$$

where n is the number of sample stock which cover the period 2003-2020, $R_{i,t}$ is the return of the individual stock i in month t, $R_{m,t}$ is the equally weighted average return on stock over the sample period in month t. To facilitate the test, the dispersion of stock return will be ranked from highest to lowest accordingly and define then into quintiles. RD1 is the lowest quintile, consist with the 20% of months with lowest return dispersion over the sample period. RD5 is the highest quintile, consist with the 20% of highest return dispersion over the sample period.

Measurement of fund activeness

To measure the fund activeness, the method from Amihud and Goyenko (2013) has been used as in the term 'activeness'. Activeness is defined by calculating fund's R^2, which obtained from regressing its multifactor benchmark model. R^2 is the proportion of the fund return variance, which is explained by the variation in these factors. The lower R^2, the more deviation of fund relative to benchmark. Consequently, the more activeness. The term activeness can be measured as

$$Activeness = 1 - R^2 = \frac{\sigma_e^2}{Total\ Variance} = \frac{\sigma_e^2}{Systematric\ Risk^2 + \sigma_e^2} \quad (2)$$

where σ_e^2 is the idiosyncratic volatility – the volatility of the residual from the regression, Total Variance is the overall variance in the fund's return, Systematic $Risk^2$ is the portion of the total variance due to the variation of the benchmark indexes. Activeness is higher if the idiosyncratic risk of fund increase relative to its total variance. The implication is that the fund's volatility is less driven by factor-based volatility. In addition, Wermers (2003) finds that funds with higher volatility of return provides the better performance.

The fund's R^2 is generated by rolling regression of the Fama and French model over 36 months of data, as follow

$$R_{j,t} - R_{f,t} = \alpha_{j,t} + \beta_{j,t}(R_{m,t} - R_{f,t}) + s_{j,t}(SMB_t) + h_{j,t}(HML_t) + e_{j,t} \quad (3)$$

where $R_{i,t}$ is the return of fund j in month t, $R_{f,t}$ is the monthly periodic treasury bill rate, $R_{m,t}$ is the month t return on the market benchmark, SMB_t is the month t return on small-large size factor benchmark, HML_t is the month t return on the value-growth

factor benchmark, $\beta_{j,t}$ is the fund j's estimated market beta, $s_{j,t}$ is the fund j's estimated coefficient on small-large size factor, and $h_{j,t}$ the fund j's estimated coefficient on value-growth factor. The small-big size factor (SMB) and value-growth factor (HML) are calculated through the equations following

Small-big size factor: $$SMB_t = \frac{(RSH_t + RSM_t + RSL_t)}{3} - \frac{(RBH_t + RBM_t + RBL_t)}{3} \quad (4)$$

Value-growth factor: $$HML_t = \frac{(RSH_t + RMH_t + RBH_t)}{3} - \frac{(RSL_t + RML_t + RBL_t)}{3} \quad (5)$$

Where RSH_t is the monthly return on small-value index, RSM_t is the monthly return on small-medium index, RSL_t is the monthly return on small-growth index, RBH_t is the monthly return on big-value index, RBM_t is the monthly return on big-medium index, RBL_t is the monthly return on big-growth index, RMH_t is the monthly return on medium-value index, RML_t is the monthly return on medium-growth index. Detailed of variable obtained are outlined in data section.

Funds are ranked in each month t according to their level of activeness in to five quintiles portfolio. A1 is the lowest quintile, consist with the 20% of funds with lowest level of activeness in each month. A5 is the highest quintile, consist with the 20% of highest level of activeness in each month.

Performance measurement

This paper is investigating the effect of stock return dispersion on fund performance in two ways analyses; simultaneous and non-simultaneous. The former analysis examines whether fund performances are instantly affected when stocks return disperse. The latter analysis examines whether stock return dispersion affects fund

performance in the subsequent month. We use the term abnormal return/alpha as the performance measurement with the implication of the performance comparison relative to the market, i.e. positive abnormal return implies that the funds outperforms the market, it does not necessarily mean positive profit. To estimate monthly alpha for both analyses (simultaneous and non-simultaneous), equation 6 is applied. Each of the coefficients are obtained from performing the regression on equation 3 over 36 months prior to month t. Results of each coefficient, then, subtract in equation 6 to derive the alpha.

$$\alpha_{j,t} = R_{j,t} - R_{f,t} - \beta_{j,t-1}(R_{m,t} - R_{f,t}) - s_{j,t-1}(SMB_t) - h_{j,t-1}(HML_t) \quad (6)$$

where $\beta_{j,t-1}$ is the fund j's estimated market beta at month t-1, $s_{j,t-1}$ is the fund j's estimated coefficient on small-large size factor at month t-1, and $h_{j,t-1}$ the fund j's estimated coefficient on value-growth factor at month t-1.

simultaneously analysis

According to the data of domestic equities mutual funds that we used, when dispersion of stock return occurs at point in time, there will be some effect on mutual fund at that particular period. In other word, fund managers with high level of activeness should adjust their portfolio promptly during the period that stock returns are highly dispersed. Kacperczyk, Nieuwerburgh and Veldkamp (2014) find the evidence that active fund managers in U.S. demonstrate their abilities to adjust their portfolio in term of deriving positive alpha in period of high cross-sectional market volatility. Thus, this study examines whether the performance of mutual fund is simultaneously affected from market dispersion.

To analyze the simultaneous event, return dispersion are in month t (RD_t) and fund activeness are obtain from rolling regression in equation 3 over 36 months including month t (R^2_t). Having sorted fund activeness into five quintiles in each month, the fund performance of each activeness portfolio will be calculated using equally weighted average performance of funds. This provides a five equally weighted average of fund performance of activeness portfolio in each month. We, then group monthly equally weighted average performance according to the five stock return dispersions to which the month belong. The example formatted results are showed in Table 3.

	Activeness ($1-R^2_t$)				
RD_t	A1	A2	A3	A4	A5
RD1	$\alpha_{A1,RD1,t}$	$\alpha_{A2,RD1,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD2	$\alpha_{A1,RD2,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD3	$\alpha_{A1,RD3,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD4	$\alpha_{A1,RD,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD5	$\alpha_{A1,RD5,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$

Table 3 The results of simultaneously analysis

non-simultaneously analysis

This study also investigates the non-simultaneously effect of stock return dispersion on fund performance that whether mutual funds alpha with difference levels of activeness are sensitive to prior market dispersion. Active managers who are highly activeness have time to adjust their subsequent month portfolio when high dispersion is taking place. Von Reibnitz (2017) found that the persistence of return dispersion between a month and one month before is exist, especially the months that have highest dispersion and lowest dispersion and also suggest there is positive relation between

stock return dispersion and subsequent fund performance which possess the high level of activeness.

To analyze the simultaneous event, return dispersion are in month t (RD_{t-1}) and fund activeness are obtain from rolling regression in equation 3 over 36 months which does not include month t (R^2_{t-1}). Having sorted fund activeness into five quintiles in each month, the fund performance of each activeness portfolio will be calculated using equally weighted average performance of funds. This provides a five equally weighted average of fund performance of activeness portfolio in each month. We, then group monthly equally weighted average performance according to the five stock return dispersions to which the month belong. The example formatted results are showed in Table 4.

	Activeness ($1-R^2_{t-1}$)				
RD_{t-1}	A1	A2	A3	A4	A5
RD1	$\alpha_{A1,RD1,t}$	$\alpha_{A2,RD1,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD2	$\alpha_{A1,RD2,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD3	$\alpha_{A1,RD3,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD4	$\alpha_{A1,RD,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$
RD5	$\alpha_{A1,RD5,t}$	$\alpha_{A2,RD2,t}$	$\alpha_{A3,RD3,t}$	$\alpha_{A4,RD3,t}$	$\alpha_{A5,RD5,t}$

Table 4 The results of non-simultaneously analysis

Result

To examine whether the performance of funds in each level of activeness are sensitive to dispersion of stock return using multi-factor model, we separate the analysis into 2 sections: simultaneous analysis and non-simultaneous analysis. The former is investigating the interaction between funds performance with the difference levels of activeness and stock return dispersion at the same period of time. The latter is

investigating the relation between stock return dispersion and subsequent period fund performance with difference levels of activeness.

Non-simultaneous analysis

This section investigates the interaction between the return dispersion, fund activeness and subsequent fund performance. We calculate the equally weighted average performance of funds in five activeness quintiles. Within each activeness levels, estimates are grouped according to the dispersion quintiles to which the month belong the funds' alpha, which is the value of month t, are calculated using equation 6 by substitute the coefficients and factors loading which are the results from performing rolling regression over 36 months prior to month t. To examine non-simultaneously investigation, return dispersion and fund activeness are on month t-1 and fund alpha will be on month t as shown in table 4.

Table 5 reports the equally weighted average fund performance on month t for each activeness and return dispersion which are on month t-1, where the performance is measured using multi-factor model.

	Activeness ($1-R^2_{t-1}$)				
RD_{t-1}	A1	A2	A3	A4	A5
RD1	-0.0062	-0.0069	-0.0067	-0.0060	-0.0049
	(-3.811)***	(-4.325)***	(-4.46)***	(-4.22)***	(-4.013)***
RD2	0.0005	0.0011	0.0007	0.0005	0.0028
	(0.061)	(0.138)	(0.086)	(0.071)	(0.435)
RD3	0.002	0.00157	0.00128	0.00045	0.00264
	(1.007)	(0.825)	(0.718)	(0.267)	(2.12)**
RD4	0.00235	0.00252	0.0021	0.00102	0.00132
	(1.08)	(1.178)	(1.053)	(0.54)	(0.87)

RD5	0.00204	0.00306	0.00457	0.00718	0.0094
	(0.809)	(1.261)	(1.955)**	(3.289)***	(6.046)***

Table 5 Alpha across return dispersion and activeness quintile (Non-simultaneously)
This table displays the equally weighted average of monthly active fund performance over the period 2009 to 2020 (140 months). Funds are sorted into five quintiles (A1 to A5) according to their activeness which calculated 1-R^2, where R^2 is derived from performing the rolling regression on multifactor equation :
$R_{j,t} - R_{f,t} = \alpha_{j,t} + \beta_{j,t}(R_{m,t} - R_{f,t}) + s_{j,t}(SMB_t) + h_{j,t}(HML_t) + e_{j,t}$ (equation 3) over 36 months prior to month t, A1 represents the 20% of lowest activeness quintile for each month and A5 represents the 20% of highest activeness quintile for each month. Within each activeness portfolios, funds are ranked according to five dispersion quintiles, where RD1 represents the 20% of highest return dispersion over the periods. RD5 represents the 20% of lowest return dispersion over the periods. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

Return dipersion	RD1	RD2	RD3	RD4	RD5
A5-A1	0.0014	0.0023	0.00064	-0.00103	0.00736
	(0.67)	(2.262)**	(0.273)	(-0.39)	(2.481)***
A5-A3	0.0019	0.0022	0.00136	-0.00078	0.00484
	(0.958)	(2.152)**	(0.819)	(-0.313)	(1.724)**
A3-A1	-0.0005	0.0002	-0.00072	-0.00025	0.00252
	(-0.221)	(0.156)	(0.239)	(1.058)	(1.957)**

Table 6 Comparison between fund activeness across dispersion (non-simultaneously)
This table display the results of the performance comparisons between funds activeness over the period 2009 to 2020 (140 months). The results are shown for the five quintiles of return dispersion, where RD1 represents the 20% of highest return dispersion over the periods. RD5 represents the 20% of lowest return dispersion over the periods. A5-A1 denotes the comparison between the most activeness fund and the least activeness fund. A5-A3 denotes the comparison between the most activeness fund and funds with the normal level activeness. A3-A1 denotes the comparison between funds with the normal activeness and the least activeness fund. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

Fund activeness	A1	A2	A3	A4	A5
RD5-RD1	0.00829	0.00998	0.0113	0.01313	0.01428
	(2.752)***	(3.434)***	(4.063)***	(5.053)***	(7.234)***
RD5-RD3	0.00004	0.00149	0.00328	0.00673	0.00676
	(0.013)	(0.484)	(1.116)	(2.448)***	(3.394)***
RD3-RD1	0.00825	0.00849	0.00802	0.0064	0.00752
	(3.2)***	(3.414)***	(3.426)***	(2.924)***	(4.32)***

Table 7 Comparison between return dispersion across funds activeness (non-simultaneoulsy)

This table display the results of the performance comparisons between funds activeness over the period 2009 to 2020 (140 months). The results are shown for the five levels of activeness, where A1 represents the 20% of the least level of activeness over the sample of 456 domestic Thai open-ended funds. A5 represents the 20% of the most level of activeness over the sample of 456 domestic Thai open-ended funds. RD5-RD1 denotes the comparison between the performance of mutual funds in the highest return dispersion and the lowest return dispersion. RD5-RD3 denotes the comparison between the performance of funds in the highest return dispersion and the normal level return dispersion. RD3-RD1 denotes the comparison between the performance of mutual funds in the normal level return dispersion and the lowest return dispersion. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

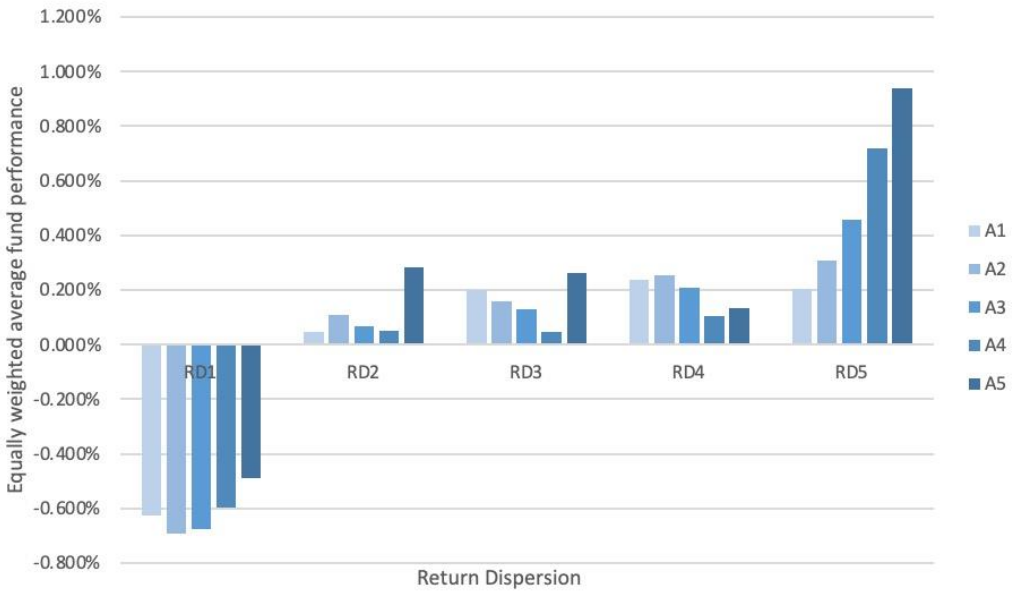
According to the results as shown in table 5, the positive relation between fund activeness and subsequent fund performance is clearly positive and exist only in the period of highest stock return dispersion (RD5). When the dispersion is high, funds with the two most activeness (A4 and A5) produce the highest abnormal return, with the statistically significant result of 0.718% (T = 3.289) and 0.94% (T = 6.046), respectively. These results are consistence with the finding from Silva, Sapra and Thorley (2001), who found that in the time of the highest return dispersion, mutual fund performance provide the outperformance relative to the benchmark. According to the results in table 6, the difference in fund performance between the highest and the lowest activeness in highest return dispersion is statistically significant (T = 2.481). In other word, in the time of the highest return dispersion, fund with the most active statistically significant fund with the least activeness. these results are consistence with the finding form Von Reibnitz (2017) that is the highest active fund outperforms the lowest active fund in the period of highest return dispersion and there are no longer chance to active fund managers to produce the positive excess return in the period of lowest return dispersion. In contrast, when the dispersion is low, active funds with all levels of activeness earn tendentiously negative excess return. There is no the tendency of fund activeness only in this particular period, as the results in table 6 show that the comparison between the most and the least activeness fund is not statistically significant

different. And not even when we compare the average level of activeness and the extremely case. Funds with the least activeness generate the statistically significant negative alpha of -0.625% (T = -3.811). Regardless of the fund activeness, according to the results in table 7, funds which are in the highest return dispersion significant outperform funds which are in the lowest return dispersion. These results might suggest that when the active fund managers face to the advantageous market environment condition, they are able to utilize such an opportunity to generate the positive abnormal return.

In addition to the analysis of two extremely case (i.e.: the highest and the lowest dispersion quintiles , the most and the least activeness portfolios). Our study, further, analyze the comparison of the extreme circumstance with the normal level circumstance. We identify the third quintile of return dispersion (RD3) and the third funds activeness (A3) as the normal level circumstance. The results illustrate that in the period of the highest return dispersion, the most activeness funds are statistically significant differ from the normal level activeness funds (A5-A3) with the difference alpha of 0.484% (T = 1.724). The rest quintiles of dispersion environment reveal that there is no significant difference in average excess return between the most and the least activeness of funds. These analyses are similar to the examination of the least activeness and the normal level one which there is only statistically significant result in period of the highest return dispersion (alpha = 0.252%, T = 1.957). Holding activeness constant, the difference between the highest and the normal level return dispersion presents the statistically significant only in A4 and A5 with the difference alpha of 0.673% (T = 2.448) and 0.676% (T = 3.394), respectively. And it is statistically significant different between the lowest and the normal dispersion for all levels of activeness.

The results contained in table 5 is graphically depicted in figure 2. Within each dispersion quintile (RD1 – RD5), the results are plotted for the least activeness portfolio(A1) on the left and move to the most activeness portfolio(A5) on the right.

Figure 2: Equally weighted average fund performance (Non-Simultaneously)



The interpretation of figure 2 is that on the time of highest return dispersion, it is the funds with the most activeness which are generating the greatest return and significantly outperform funds with the least activeness. Active funds with the most and the least activeness are significantly difference within this quintile. On the other hand, the lowest dispersion quintile, funds with all levels of activeness significantly produce negative return, however, the difference between the most and the least activeness of funds are insignificant. Furthermore, in period of RD2 to RD3, there are insignificantly positive excess return for all of levels of activeness.

To discuss against the hypotheses of this study, according to the first hypothesis that is to test whether funds outperform during period of high return dispersion, the

results show that funds significantly outperform only if the return dispersion is the highest. Consistent with the finding of Silva, Sapra and Thorley (2001), in the period of high dispersion, funds will outperform the benchmark during high dispersion where there exist an increasing number of stocks that beat the benchmark, by selecting the right stocks, it will provide significant opportunity for fund manager to generate positive alpha. Thus, we reject the null hypothesis. Taking discuss on the second hypothesis, to test that the most activeness funds outperform fund with least activeness in the period of highest return dispersion, there exist the strong evidence that is the difference between the most and the least activeness funds is statistically significant of 0.736% (T = 2.481). Consistent with the finding of Von Reibnitz (2017) and Cao (2020), the highest active funds significantly outperform the lowest active fund in the period of highest return dispersion. Thus, the conclusion is that we reject the null hypothesis of the hypothesis 2. In addition to the result focused on the highest return environment, the study provides the results which consists to our expectation against the third hypothesis in the lowest environment. The results emerge the insignificant difference between the most and the least activeness funds in the period of low dispersion (alpha = 0.14%, T = 0.67) as oppose what we state on H3 which is the most activeness funds outperform fund with least activeness in the period of lowest return dispersion. We, then, fail to reject the null hypothesis of the third hypothesis. Moving discussion on the fourth hypothesis (H4) and the fifth hypothesis (H5), to test whether invest in funds in period of higher return dispersion perform better than investing in funds in period of lower return dispersion with the level of the highest and the lowest activeness, respectively. The results present the statistically significant of the difference between RD5 and RD1 focusing on the least activeness(alpha = 0.829%, T = 2.752)

and the most activeness(alpha = 1.428%, T = 7.234). Consistent to what Foran and O'Sullivan (2017) find which is fund managers' ability will solely successfully outperform when conditional market volatility is higher than the normal level. Thus, we can conclude that we reject null hypothesis of both fourth and the fifth hypothesis.

Simultaneous analysis

We begin the test of simultaneous case by analyzing average month return. Each month, we calculate the fund activeness by obtaining fund's R^2 over 36 months using equation 3, we further derive the factor loading as the secondary results in order to compute fund alpha using equation 6. We then, ascendingly sort fund activeness in each month in order to distinguish them into five activeness portfolios. The equally weighted average fund performances for each activeness portfolio over entire period are calculated. This provides a time series of monthly fund performance for each portfolio. The estimates are then grouped according to the dispersion quintile to which the month belong. To examine simultaneously investigation, return dispersion, fund activeness and fund alpha will be on the same period as shown in table 3.

Table 8 reports the equally weighted average fund performance for each activeness and return dispersion in the same period, where the performance is measured using multi-factor model.

	Activeness ($1-R^2_t$)				
RD_t	A1	A2	A3	A4	A5
RD1	0.0029	0.0022	0.0025	0.0027	0.0014
	(7.446)***	(5.266)***	(5.909)***	(5.878)***	(2.274)**
RD2	0.0007	0.0005	0.0010	0.0003	0.0032
	(0.881)	(0.692)	(0.98)	(0.584)	(5.361)***
RD3	0.0032	0.0023	0.0024	0.0035	0.0048
	(5.32)***	(3.472)***	(3.598)***	(4.758)***	(5.609)***
RD4	0.0029	0.0038	0.0040	0.0030	0.0042

	(2.995)***	(4.67)***	(6.97)***	(4.615)***	(5.107)***
RD5	0.0021	0.0014	0.0014	0.0042	0.0061
	(3.198)***	(2.038)**	(1.82)**	(4.985)***	(6.691)***

Table 8 Alpha across return dispersion and activeness quintile (simultaneously)
This table displays the equally weighted average of monthly active fund performance over the period 2009 to 2020 (140 months). Funds are sorted into five quintiles (A1 to A5) according to their activeness which calculated 1-R^2, where R^2 is derived from performing the rolling regression on multifactor equation :$R_{j,t} - R_{f,t} = \alpha_{j,t} + \beta_{j,t}(R_{m,t} - R_{f,t}) + s_{j,t}(SMB_t) + h_{j,t}(HML_t) + e_{j,t}$ (equation 3) over 36 months including month t, A1 represents the 20% of lowest activeness quintile for each month and A5 represents the 20% of highest activeness quintile for each month. Within each activeness portfolios, funds are ranked according to five dispersion quintiles, where RD1 represents the 20% of highest return dispersion over the periods. RD5 represents the 20% of lowest return dispersion over the periods. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

Return dipersion	RD1	RD2	RD3	RD4	RD5
A5-A1	-0.0015	0.0025	0.0016	0.0013	0.0040
	(-2.067)**	(2.594)***	(1.544)*	(1.04)	(3.61)***
A5-A3	-0.0037	0.0020	-0.0007	0.0025	0.0027
	(-1.46)*	(1.687)**	(-2.143)**	(1.707)**	(2.236)**
A3-A1	-0.0062	0.0010	-0.0031	-0.0065	0.0013
	(-0.651)	(0.781)	(-0.784)	(-0.289)	(1.281)*

Table 9 Comparison between funds activenss across dispersion (simultaneously)
This table display the results of the performance comparisons between funds activeness over the period 2009 to 2020 (140 months). The results are shown for the five quintiles of return dispersion, where RD1 represents the 20% of highest return dispersion over the periods. RD5 represents the 20% of lowest return dispersion over the periods. A5-A1 denotes the comparison between the most activeness fund and the least activeness fund. A5-A3 denotes the comparison between the most activeness fund and funds with the normal level activeness. A3-A1 denotes the comparison between funds with the normal activeness and the least activeness fund. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

Fund activeness	A1	A2	A3	A4	A5
RD5-RD1	-0.0008	-0.0008	-0.0011	0.0015	0.0047
	(-1.085)	(-0.991)	(-1.29)*	(1.619)*	(4.294)***
RD5-RD3	-0.0011	-0.0009	-0.0011	0.0007	0.0014
	(-0.001)	(-0.001)	(-0.001)	(0.001)	(0.001)
RD3-RD1	0.0003	0.0001	-0.0001	0.0008	0.0034
	(0.001)	(0.001)	(-0.001)	(0.001)	(0.001)

Table 10 Comparison between return dispersion across fund activeness (simultaneously)

This table display the results of the performance comparisons between funds activeness over the period 2009 to 2020 (140 months). The results are shown for the five levels of activeness, where A1 represents the 20% of the least level of activeness over the sample of 456 domestic Thai open-ended funds. A5 represents the 20% of the most level of activeness over the sample of 456 domestic Thai open-ended funds. RD5-RD1 denotes the comparison between the performance of mutual funds in the highest return dispersion and the lowest return dispersion. RD5-RD3 denotes the comparison between the performance of funds in the highest return dispersion and the normal level return dispersion. RD3-RD1 denotes the comparison between the performance of mutual funds in the normal level return dispersion and the lowest return dispersion. Standard T-statistics are reported in parentheses. ***,** and * denote significance at 1%, 5% and 10% level, respectively.

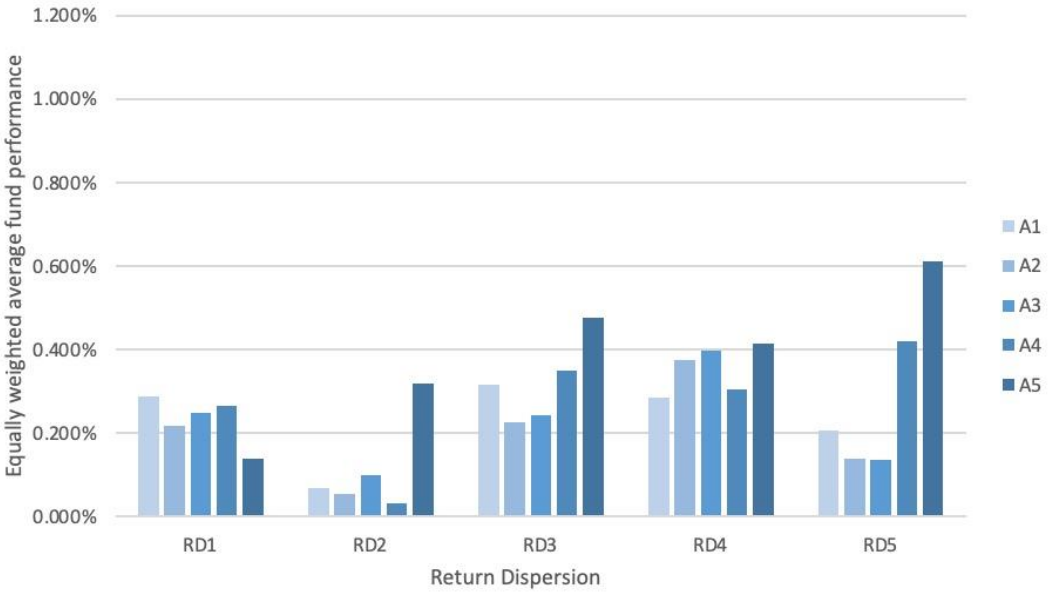
According to the results of simultaneously event contained in table 8, there is no explanatory for the trend as a linear across dispersion quintile as revealed in non-simultaneous case and most of the results are positively significant difference form zero. These results interpret that in simultaneous case, fund managers can take the advantage of all levels of market condition to generate the significantly positive abnormal return. However, the results provide some less clear trend when analyze within each RD quintile, especially in RD5. In the period of the highest return dispersion, funds with the most activeness generate the greatest abnormal return of 0.61% (T = 6.691), compare the least activeness funds which produce less abnormal return of 0.21% (T = 3.198). the difference between the most and the least activeness is statistically significant (T = 3.61) in RD5. Taking analysis further within the most activeness (A5), the results show funds with the most activeness generate positive abnormal return as more as return dispersion are wider. Moreover, the abnormal return generated by the most activeness funds in RD5 are statistically significant compared to the one in RD1 (T= 4.294).

The result of outperformance in simultaneous analysis can be thought that there is the effect of market return dispersion on fund performance, but the results are not clear where we have to take into account some other factors. However, with the persistency of the market environment condition as shown in table 2, leading the results

of the relation between return dispersion and fund performance are become clearer as in the case of non-simultaneous.

The interpretation of figure 3 is that the patterns of fund performance are mixed across return dispersion. mutual funds tend to be significantly outperformance in all quintiles of return dispersion except for RD2 regardless of the fund activeness. the trend of fund activeness in less clear within each return dispersion quintiles. The results might be interpreted that the market environment condition will be matters than fund activeness in term of abnormal return generation in simultaneous case.

Figure 3: Equally weighted average fund performance (Simultaneously)



We further analyze by treat the median activeness (A3) and return dispersion (RD3) as the normal levels compare to both extremely case of return dispersion and fund activeness (A1 and A5, RD1 and RD5). The results show that there is statistically significant difference only between the highest and the normal activeness for all return dispersion (A5-A3).

The results contained in table 8 is graphically depicted in figure 3. Within each dispersion quintile (RD1 to RD5), the results are plotted for the least activeness portfolio(A1) on the left and move to the most activeness portfolio(A5) on the right.

Taking analysis further against the hypotheses. The first hypothesis that is to test whether funds outperform during period of high return dispersion, the results show that funds significantly outperform for all levels of activeness across return dispersion except the second lowest return dispersion (RD2) which perform insignificant results for A1 to A4. According to the second hypothesis of this study (H2), which states that the most activeness funds outperform fund with least activeness in the period of highest return dispersion, the results reveal that in the period of highest return dispersion where

the difference between the most and the least activeness is statistically significant outperform (alpha =0.4%, T = 3.61), consist with our expectation of this hypothesis. Thus, we then reject the null hypothesis for H2. For the third hypothesis which state that the most activeness funds outperform fund with least activeness in the period of the lowest return dispersion and the results reveal the underperformance of the most activeness fund compared to the least (alpha = -0.15%, T = -2.067) as we expected. We reject the null hypothesis at 5% significance level. Hypothesis 4 are testing whether in the level of highest activeness, investing in funds in period of higher return dispersion perform better than investing in funds in period of lower return dispersion. The results are going as expected only if funds are the most activeness level. Activeness funds in period of the widest dispersion statistically significant outperform funds in period of the lowest return dispersion. Thus, we reject the null hypothesis. And the last hypothesis of this study, fifth hypothesis test whether invest in funds in period of higher return dispersion perform better than investing in funds in period of lower return dispersion with the level of the lowest activeness. The results reveal insignificant difference between the two extremely market environment when funds belong in the least activeness portfolio. We fail to reject the null hypothesis.

Conclusion

Our examination of the relationship between stock return dispersion and the subsequent domestic equity open ended fund performance with the difference levels of activeness in Thailand derives the results that are consistent with the finding in the US by von Reibnitz (2017). We found that active funds with high activeness level outperform funds with the least activeness level in the following month after the period

of widest dispersion. Specifically, our study found that in the RD5 period, the most active mutual funds significantly outperform the least one by 0.94% monthly. On the contrary, funds, regardless of their activeness level, underperform market benchmark in the period of the lowest return dispersion. The results imply that RD is a significant market environment variable which can be used to predict the performance of active funds in the subsequent month. The rationale mechanic behind this effect is the ability of fund managers to generate the positive alpha in the advantage moment in market environment as indicated by stock return dispersion. Comparing to the results of previous study (von Reibnitz, 2017 and Cao, 2020), the results of this paper agree with Barry, Peavy jr. and Rodriguez (1998) and Bakaert and Harvey (2002), who found that emerging markets have the unique characteristics regarding the high volatility and the more frequency of trading transaction, which provide the advantageous for the active managers to take the opportunity to manage their portfolios according to the market condition. While von Reibnitz (2017) and Cao (2020) found the outperformance of US active funds only in the top quintile (A5), our study in Thailand found that a wider range of active funds (A4 & A5) can benefit from high dispersion environment. This study also found that the activeness level affects performance in both directions, i.e., the increased activeness level above the median leads to an increase in fund performance, while the decreased activeness level below the median also reduces the fund performance.

We further examine the simultaneously relation between the stock return dispersion and fund performance with the different levels of activeness. The results show that the pattern of fund performance is mixed across the quintiles of return dispersion and funds tend to significantly outperform in all return dispersion except for

RD2 regardless of the fund activeness. The relation between the return dispersion and fund performance is not clear within the same month. While we believe that fund performance should generally occurs after the return dispersion event as the result of portfolio management of fund managers, the result shows that most of the relation between RD and fund performance is too soon to be detected within the same month. Only in the period of the highest return dispersion, we still detect the most active fund still outperforming the less active fund in the same month.

REFERENCES

VITA

NAME	Pavit Sae-Eng
DATE OF BIRTH	28 December 1994
PLACE OF BIRTH	Thailand
INSTITUTIONS ATTENDED	Thammasat University
HOME ADDRESS	29/29 Suksawat Soi 39, Suksawat Road, Bang Pueng, Phrapadang, Samut Prakarn, 10130